

Thursday, February 10, 1983

Fresh attack on education cuts

by Kevin Cahill
THE government has come under renewed attack from the highest levels of the UK computer industry and academia over its education policy.

David Baldwin, UK managing director of Hewlett-Packard, which is currently creating 1,000 jobs in the computer industry at Bristol, said that his company is concerned that there are now more students than places on computer science courses at UK universities and polytechnics.

Baldwin acknowledged that HP would be talking directly to the government on the issue but warned that "time is not on our side."

By the mid-80s Baldwin said 50% of all Hewlett-Packard's new recruits would have to be graduates, with all the remainder educated to at least A or O-level standard.

Baldwin pointed out that Japan and the US were both producing more than 2.5 times as many engineers as the UK, on a comparative basis.

Last year Japan graduated 87,000 engineers, the US 63,000 and the UK a mere 13,000.

Compared with Japan the UK should have produced 43,000 engineers. To keep in line with US levels the UK would have needed 27,000 engineering graduates.

Although Baldwin was lavish in his praise for the standard of recruitment that Hewlett-Packard had so far obtained, he said that the company was concerned about the "quality" of some of the courses offered.

He later explained that he had used "quality" in terms of the relevance of the courses to the needs of companies like Hewlett-Packard. He did not intend to imply failure

to meet any particular set of standards.

Baldwin's points, coming as they do from the chief executive of one of the UK's largest computer companies, directly echo misgivings about the current course of computer education expressed by ICL's managing director Robb Wilmot late last year.

Wilmot told the British Computer Society that the drop in enrolment on computer science courses was serious.

According to Wilmot, less than 10% of the basically inadequate number graduating in computer science do so in commercial data processing.

A spokesman for the Department of Education and Science said that the number of children doing O and A education in computers had gone up exponentially in the past four years. But for



BALDWIN... "Time is not on our side."

many there is nowhere for them to go when they get their qualifications.

Dr John Beishon, director of the South Bank Polytechnic in London, the biggest poly in the country with over 17,000 students, de-

scribes the government's policy as "crazy".

He says that while the government has belatedly recognised the need for more funding for information technology, he considers it "too little too late."

System cuts 1,800 names from council housing list

by John Kavanagh and our Parliamentary Correspondent
HUMAN error and a system sign fault deleted nearly 1,800 council tenants' names from a house exchange system run by the Computer Bureau for the Department of the Environment, Housing Minister John Smeaton, said the Commons last week. The incident involved people who applied for home swaps over a five-day last July.

The error cost Council Housing "man weeks" of programming to ensure it could not happen again, according to Derek Mao, managing director of Beaufort Computer Services, which bought the system in December. Operating procedures have also been tightened.

The problem arose because tenants can list several areas they would like to move to or be application forms.

The system did not check for correlation between the number of people on the register and the number of areas listed.

During a run last July a system had to be restored and wrong files were mounted, causing the latest 1,800 applications to lack a control program and this error went undetected.

Philip Stevens, head of Computel, said the company had not been compensated but had made changes and re-entered and processed the deleted data free of charge.

He added that Computel received "loads of congratulatory letters" from tenants about the system. About 49,000 people used it by the end of 1982.



BLUMENTHAL... Narrowed choice to Mitsubishi or Hitachi.

Burroughs takes Japanese route into PCM market

by Kevin Cahill
A MAJOR new entrant to the IBM plug-compatible market is likely to emerge as Burroughs prepares to sign a key mainframe supply deal with one of two Japanese companies.

Mitsubishi said originally that the company intended to invest \$100 million in the production of a twin processor machine, one processor to run the IBM instruction set, the other to run the instruction set for Mitsubishi's own Cosmos range based on the Xerox Sigma line, which is no longer produced in the West.

Hideo Ohta, director and deputy general manager of the electronics products and system group of Mitsubishi Electric Corp said the aim was to produce a range of machines in the five to eight million instruction per second class with IBM compatibility based on an independent Mitsubishi operating system.

This makes Hitachi a strong contender for a deal according to some Japanese commentators, but they also suggest that Mitsubishi, now that it is about to start production of the IBM compatible mid-range mainframes (originally revealed in Computer Weekly in December 1980) is still a possible choice for Burroughs.

Burroughs itself is about to start a major new manufacturing facility in Japan, and the idea of a parallel deal with Mitsubishi has been raised with Blumenthal.

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NEDO working party calls for an urgent national policy

'Act now — or UK will be out of IT by 1990'

by John Kavanagh
THE UK could be out of the information technology business by 1990 unless the industry, the government — and users — act now to make UK information technology companies more competitive in world markets.

Yet users see UK suppliers as preoccupied with technology rather than customers' needs, unable to provide complete systems — but unwilling to co-operate — and bad at marketing and support.

These gloomy views emerge from two reports from the influential National Economic Development Office's information technology sector working party and its user panel.

The information technology working party, made up of senior people from industry, unions and

face of the threat from Japan.

The working party calls on UK information technology firms to agree on international connection standards and work together on research. Manpower planning should be improved and there should be closer ties with universities and government bodies.

Marketing emphasis should move from technology to providing a service. And the industry should work with the government to set up "shop window" projects.

Government and public bodies should agree on common goals to support information technology. Public purchasing should promote high quality and the use of international standards. And a five-or 10-year plan should be set up in the wake of Information Technology Year to support the industry

But users do not agree, according to the user panel report, which has not yet been published. UK firms are too concerned with technology. They have some excellent products but are bad at supporting them. And they are conditioned by the public sector market and are thus "commercially ineffective."

The user report says users look towards companies which can supply and support complete systems — and this favours multinational suppliers.

Cord ties up Zeus in 'out of blue' offer

REAL time technical system house Zeus Hermes has been bought by Cord Designs of Staines from the Enterprise Systems Group which had owned it for less than a year. Enterprise chairman Peter Rhodes-Dimmer said they had lacked the management resources to put the right amount of effort into Zeus.

"We've had a tremendous increase in other business areas and we felt that Cord's offer out of the blue ought to be accepted," he said.

Newbury jobs

A FACTORY expansion of 30% is to create 100 new jobs at Newbury Data Recording, the UK's biggest peripheral manufacturer. And the publicly-owned company is considering moving into the US with its matrix printer range. Marketing manager John Pether said, "Our US competitors have been hit by the changing dollar exchange rate, which means we can offer good prices against them."

Cullinane grows

SOFTWARE house Cullinane Database Systems has seen its revenue shoot up 57% in the six months ended October 1982. The growth to over \$34 million in the half year was well in line with the annual goal of 50%, according to UK managing director Vic Morris.

Manpower study

A £15,000 EEC study by the Institute of Manpower Studies to examine manpower problems in the European semiconductor industry has received a £5,000 boost from the Manpower Services Commission. It will be used to examine how effectively graduates of specialised electronics courses in universities are used by industry.

Software exports under fire

by John Kavanagh
THE software industry and the government have been slammed over the UK's poor software export record — by one of the industry's own members.

Scicon managing director Warren Werblow last week told the Parliamentary Information Technology Committee that although the government had been successful in attracting overseas companies to set up software and manufacturing centres in the UK it should pay attention to the UK's home-bred information technology industry.

He pointed to the withdrawal of government support for the long-making software marketing company Insec, and called for full backing for the Department of Industry's Atvey Committee recommendations on future computing research, plus extra funds for the Software Products Scheme.

He went on, "As a country we haven't really made much headway in recent years in software exports. British software has a deserved reputation for quality but can we really say we've capitalised on this, with exports running at £50 million and a home market of about £1 billion?"

WERBLOW... Pay attention to UK industry.

And as minicomputer leader Digital Equipment prepared to announce the building of a £7 million UK software centre (see front page), Werblow added, "We've had foreign companies taking advantage of our relatively low salary structures either to tempt away our software talent overseas or to staff software laboratories they establish in the UK. Are the conveniences generated to be regarded as British exports?"

See Leader Comment — page 15.

LINE NOISE

THE government refuses to say categorically that the Department of Industry's Computer Aided Design Centre will not pass into overseas ownership now that it is being sold off — but if the likes of US minicomputer firm Edec, which recently took over the computer-aided design specialist Compaq, hopes for another coup, it should not disregard the staff's reactions. "We're keeping an eye on the situation," said Nick Ballard, representative of Clive Jenkins' white-collar union ASTMS, which has nearly 70 members among the 150 staff. "This is a political hot potato and we don't think the government wants eggs on its face over the sale of its prime centre of excellence in this field."

SCOTTISH disc maker Rodime could well have landed the plum contract to supply IBM with Winchester for Granich-Kelly Personal Computers. A hard disc version of the PC is not far off, and the chance of a local firm would seem to be logical. Rodime may be set to score lots of points with the IBM deal, but other users of Rodime products aren't so happy. Milton Keynes-based Percom has stopped using Rodime drives. Percom's R&D manager David Williamson told Computer Weekly that the Rodime drives produce too much noise. "They work OK, but keeping the whole unit cool is a problem, so we've switched to American drives."

'Blue' row leads to BT rival

by Donald Kennett
A DISAFFECTED Prestel information provider has started a rival service.

Ivan Slou was at the centre of a row last year when his company, Track 2, carried advertisements for massage parlours and saunas in its Blue Pages database on Prestel. Complaints from the public led to questions being asked in the House, and comments from campaigner Mary Whitehouse and pressure from the Viewdata Industries Association for the removal of the advertisements.

British Telecom found it hard to explain that it felt no more responsible for the information carried on Prestel than it did for the contents of telephone calls.

Now Slou has started another company, called Online Viewdata Marketing, which will use IBM's viewdata bureau service in Warwick and its network of eight concentrators around the country to bring his "electronic yellow pages", also called Blue Pages, to individual consumers interested in entertainment, travel, food and

services, including licensed saunas.

About £250,000 has been put into the operation and it already claims 2,000 advertisers.

A major selling point will be a magazine and index designed to enable users to go straight to the information they want.

Clark says OVM has signed up an unidentified US company to provide a link into a Canadian network which includes translating the information into a form that is compatible with Canada's Telidon system.

Disc problem 'has cost Storage Tech \$17m'

by Howard Kerten and Kevin Pearson
ONE of the leading suppliers of IBM compatible discs has suffered a double setback in recent months.

Storage Technology is reported to have spent \$17 million correcting a problem with its 8650 double density disc drives. And late last year the company announced that it was to drop the development of its 8370 drive, which was to compete against IBM's 3370 in the small systems market.

STC replaced about 2,000 of its 8650 devices, compatible with IBM's 3350, when some of them began to fail after between three and six months in the field.

A spokesman for STC explained that the problem was caused by failure in the magnetic coating on the discs as a result of a crash manufacturing programme by STC to meet the increased demand generated by IBM's failure to bring its 2.5 gigabyte 3380 to the market on schedule.

The problem, called "partialisation" in the trade, involves the break-up of the magnetic surface of the discs themselves. IBM is believed to have encountered a similar problem with its 3380s.

The problematic 8650s were not made by STC but by an outside sub-contractor, said a spokesman. The firm was not named.

DEC puts faith in UK

From front page
people," he said.

As well as taking on graduates DEC is talking to universities about office automation research and is close to signing agreements with some of them.

The new centre will build full-scale office automation systems as test beds for ideas and software, both within DEC and with its customers. Barbe said DEC had already set up one of the world's biggest electronic mail networks, with 15,000 users, for its own use.

He added, "Many of the ideas developed and tested by the centre will be right on the fringe of the possible."

Software engineering manager Dick Davies said human interfaces would be one of the key areas for research.

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BT unions slam govt 'secrecy'

by Donald Konnet
BRITISH Telecom unions have slammed the latest government measures to control the telecommunications industry which they say make a nonsense of the democratic process.

A strongly worded statement from the BT Unions Committee, which represents six BT unions, attacked the government for commissioning in secret a report on how to limit any ill-effects of BT becoming a private company with a dominant market position.

The recommendations of the report, by Professor Stephen Littlechild of Birmingham University, had been largely accepted by the government with no discussion in Parliament or consultation of users, the union statement said.

The plan to keep some of BT's prices below the level of inflation for at least five years was a reversal of the policy to free BT from government interference. And opening international services to competition would cause competition to other countries which rightly regarded such competition

as bad for customers as a whole, it added.

The BTUC represents the Post Office Engineering Union, the Workers of Communications, the Society of Post Office Executives, the Civil and Public Servants Association, the Communications Managers' Association and the SCPA.

The Opposition parties in Parliament have been delaying the passage of the Telecommunications Bill, under which BT is to be sold to private investors and an Office of Telecommunications is to be set up to control the industry.

Filibustering by opposition speakers in the committee stages of the Bill was expected to be brought to an end this week by a guillotine motion in the House of Commons that would impose a strict schedule for the discussion of each of the Bill's 84 clauses. So far discussions have only reached Clause Three.

BT's reaction to the Littlechild report was "pleasant surprise that he had rejected the worst forms of regulation".

BT chairman Sir George Jeffer-

son said, "The broad thrust of the Littlechild report is consistent with the desire we have, and with the view of the Secretary of State, that BT should be able to operate in an environment that is dynamic. With that goes some element of competition."

"The timing and phasing should be such that such a major transition can be sensibly accomplished and that the economics of the network are not put at risk."

"In the international situation one is not starting from a non-competition position. But for many years it has been the policy of BT as an international operator to have regard that there is no major danger of damage to international routes. To that end it hasn't gone for the cheapest route, which is usually satellite, but has gone for diversity. If it is exposed to competition it might have to increase the risk factor."

He added, "British industry has 90% of the market for submarine cable. If there is competition we might have to seek other ways of helping industry."



Lambie (left) and founder managing director Rupert Bayfield drink to the next 10 years.

Firm that called a halt to 'the old-boy network'

by John Kavanagh
A COMPANY which claims to have turned contract staffing from an old boy network into a professional business service celebrates 10 years in the computing industry this month.

Computer People also claims that its £8 million annual turnover puts it at least £2 million ahead of other companies specialising solely in contract and permanent staff recruitment. Pre-tax profits run at about 7% of turnover. About half the revenues come from its offices in the US.

"When we started the contract business was nothing like today," said founder director Anthony Lambie. "Ourselves and Trident

Computer Services, formed about the same time, made it into a proper business. Previously it was a case of personal recommendation, like an old boy network."

"Since then the business has established a reputable professional image."

Lambie said there were probably over 100 contract staffing firms in the UK. Computer People was also the biggest in terms of numbers of people out on contract - 400 on average.

These are drawn from a database of 10,000 names held on six Comart microcomputers.

Lambie added that the recession had changed the contract business, but not badly hit it.

Philips wins £12m French phones deal

DUTCH electrical group Philips to supply 100,000 terminals to the French Post Office project to computerise telephone directories. French phone subscribers will eventually receive a complete replacement for their phone directories free of charge. The £12 million worth of terminals will be delivered by Philips over the next year.

And Philips has won a bid for 600 terminals for the New Zealand Post Office. The order is a Swedish-made PT6000 terminal.

Personal boom

PORTABLE personal computers are set to boom over the next years. Hardware shipments will increase tenfold by 1987, reaching five million units worldwide, says Portia Isaacson, president of market-watchers Future Computing, while software for machines will show an even greater increase, from 650,000 last year to over ten million in 1987.

Comment invited

THE North American Protocol System (NAPS) for viewdata, teletext, which started life as a controversial proposal by American Telephone & Telegraph at Videotex 81 in Toronto, has been published for public comment by May 21 on its way to becoming a US and Canadian standard.

Schools quiz

CONTROL Data is jumping the schools quiz competition wagon, but with a difference. Pupils answer the questions, two teachers get the prize - course each on Plato, Control Data's computer-based training system. The schools are in North London, and the final to be in early March.

Viewdata deal

THE Volkswagen-Audi Group has installed a 500-terminal viewdata network to handle communications with its dealers. Prime contractor for the last office system was Comtel Communications Systems, formerly Menzies Communications Systems, which had previously implemented a voice response system for the company. Viewdata software was supplied by Comtel. Terminals, the company set up supply terminals for the Stock Exchange's Topic viewdata system in 1978.

Racal-Milgo

RACAL-MILGO's orders from British Telecom for high-speed modems (mostly 9,600 baud/sec devices) reached a record £6.5 million for the past year. Last week about 100 Borer winning a £2.4 million order from BT stated incorrectly that Racal had been dropped; BT confirms that Racal-Milgo continues to be a major supplier of high speed and other modems.



JACKSON... Starting from scratch again.

Forty jobs lost in software shutdown

by John Kavanagh
THE recession has claimed a new victim in UK bureau and software group Jackson Associates. The software side of the company has closed with the loss of 40 jobs but the receiver has kept the 40-strong bureau operation together in the hope of finding a buyer.

Meanwhile founder and managing director Barry Jackson and his wife Sue, the company secretary, have left to start again in business.

Barry Jackson said he had no firm plans but would probably start from scratch with his own software and consultancy firm. Sue Jackson is setting up a word processing bureau with some friends and her husband may form a software division under the same company name.

"Business was fine until last year," said Sue Jackson. "But because of the recession a lot of our customers were taken over or went bankrupt. This meant we had a lot of staff with no work to do."

The receiver, Christopher Morris of Touche Ross, said the company had also been charging wrongly. "It appears that work was obtained at levels which could not support the company," he said.

Jackson Associates was formed in 1973. It moved into the bureau business by taking over Scan Data Centres in 1980. A year later it announced a move from Honeywell mainframes to ICL with a £300,000 order for two 2946s. Sue Jackson said the company's problems could not be traced back to that expansion or to the change of equipment.

Jackson Associates is backed by some blue-chip companies, including Blue Circle Industries with 26 per cent, the Lloyds Bank pension fund and merchant bank Robert Fleming.

Before the slump it was growing rapidly and more than doubled its profit in 1980 to £189,000, while turnover reached £2.2 million.

CP/M system rewritten in 'C' language

by George Black
DIGITAL RESEARCH has rewritten its CP/M operating system in "C" language to make its software more portable.

The first micro to offer it is the American Sage machine, distributed in this country by the Bristol firm TDI.

The new version of the popular operating system is called CP/M-68K and is the first of a family of CP/Ms promised in "C". A version called CP/M-28600 will probably be shipped next month for the Zilog-chip machines.

Digital Research director of European operations, Paul Bailey, said that in future they would write source code in "C" wherever possible because it was ideal for portability.

"I've never seen CP/M and Unix as competitors," he added.

Previously, source code has been mostly in assembler.

"We want to cut down the number of versions we have to support. There are now a dozen of so, which is creating a maintenance problem," said Bailey.

CP/M-68K will allow CP/M



BAILEY: "Ideal for portability".

systems to two applications written in "C" for a Unix environment. The users to benefit will be those with machines based on Motorola's 68000 chip, such as the new Apple Lisa, the Portune and Hewlett Packard's 9800 series.

Sage, which appointed TDI as its UK distributor last September, claims its 68000 micro is four times as fast as other 16-bit machines such as the IBM and the Sirius, and 14 times faster than the 8-bit Apple II.

With CP/M-68K, Digital Research is to ship a "C" compiler and a Unix Version 7-compatible run-time library.

"There is a growing amount of software being written in 'C' and our move will allow all these programs to be more widely used," said Bailey.

Hitachi fined \$10,000 in IBM secrets case

by Kevin Pearson and Howard Karlen
HITACHI last week pleaded guilty in conspiracy charges in one of the US trade secrets cases involving the alleged theft of design information from IBM. The company was fined the maximum penalty of \$10,000.

The company was charged in June 1982, after a seven-month investigation by the FBI, with conspiring to steal confidential design information from IBM on IBM's latest hardware and software products - the 3081 CPU and its MVS/Extended Architecture (XA) operating regime.

At the time Hitachi - which was indicted with Mitsubishi in a separate charge - professed its innocence, and still does, though guilty pleas were put before the court in California last week.

Peter Flemming, Hitachi counsel, told reporters that Hitachi had pleaded guilty to exchange for an

assurance from the US Justice Department that no further charges would be brought in the case.

The company at the time admitted to authorising payments totalling over \$500,000 for IBM design documents, but added that it did not know that documents were stolen. The company still maintains this position.

This plea bargaining is seen as an attempt by both sides to avoid more serious consequences of a full-scale industrial spying charge, including a worsening of general trade relations between the US and Japan.

Frank Jens, an analyst with the Boston-based Yankee Group consultancy, believes the plea bargaining was an astute move by Hitachi. "The last thing Hitachi wanted was a big court case, especially given the trade and political climate between the US and Japan at the moment."

Jens does not think the plug-

compatible business will be badly affected by the case. "The uncertainty in the case has been alleviated by Hitachi's plea. People have short memories. In 12 months it could be forgotten."

Mitsubishi says it will maintain its "not guilty" plea. But Jens points out that the hearing is not scheduled until July 1983, and the company could change its mind in the light of the aftermath of Hitachi's guilty plea.

Two Hitachi employees pleaded guilty at the same hearing as Hitachi and were fined \$10,000 and \$4,000. The cases against 11 other Hitachi officials, nine of whom are now in Japan will continue, but without guilty pleas from the defendants. Hitachi maintains that its senior executives knew nothing about the alleged illegal activities.

The major remaining obstacle to a full settlement of all cases is the civil suit brought against NAS, its parent company, National

Semiconductor, and Hitachi, by IBM.

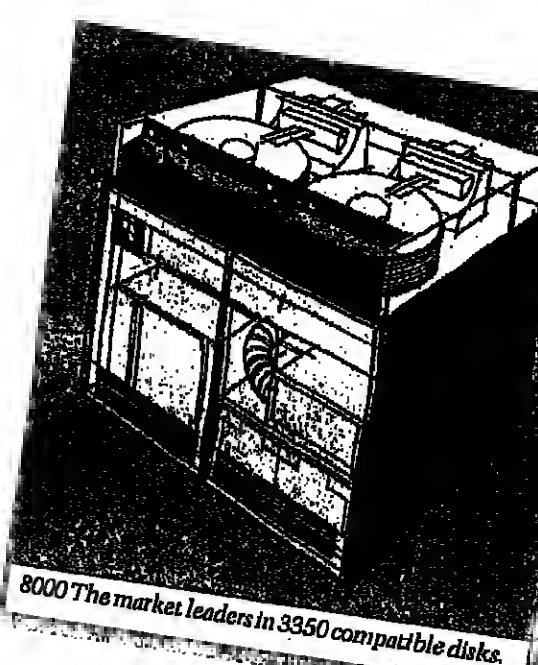
The case continues, though the parties concerned are negotiating for an out-of-court settlement. The trial judge ordered a 60-day delay in the proceedings to enable them to get together.

Hitachi is vigorously pursuing an out-of-court settlement, according to reports from Japan.

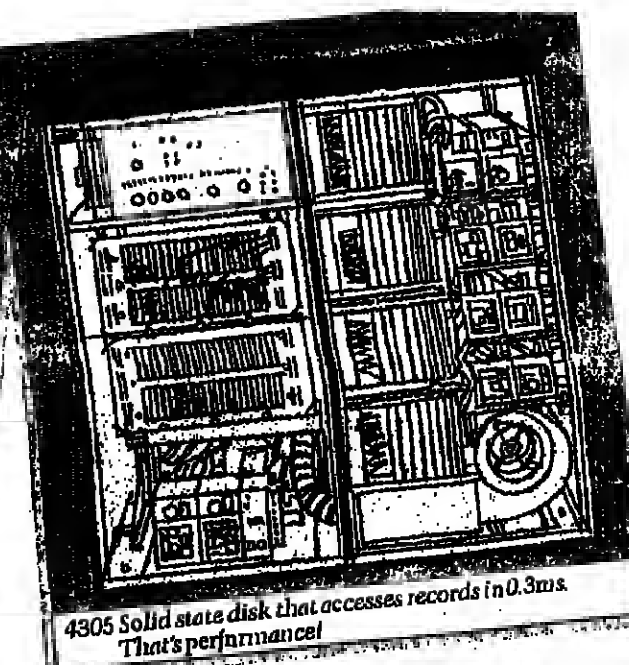
The feeling in the US is that an agreement will be reached between IBM and the defendants.

NAS president David Martin admitted that the case had driven his company into the red over the recent past, though he expects NAS to make a full recovery in 1983. It was partly this which led NAS to stop its own computer manufacturing operations.

The case is really a statement from IBM that it is no longer a slumbering giant, content to let the PCM companies prey on its captive market, says Jens.

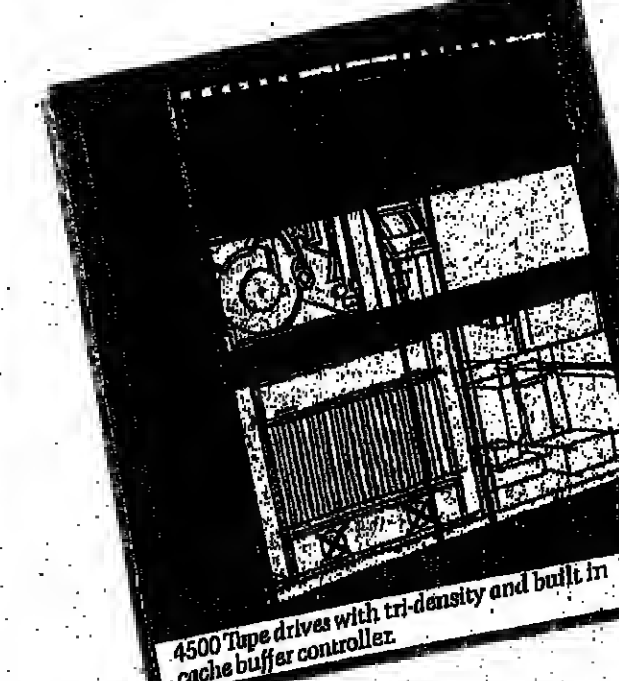


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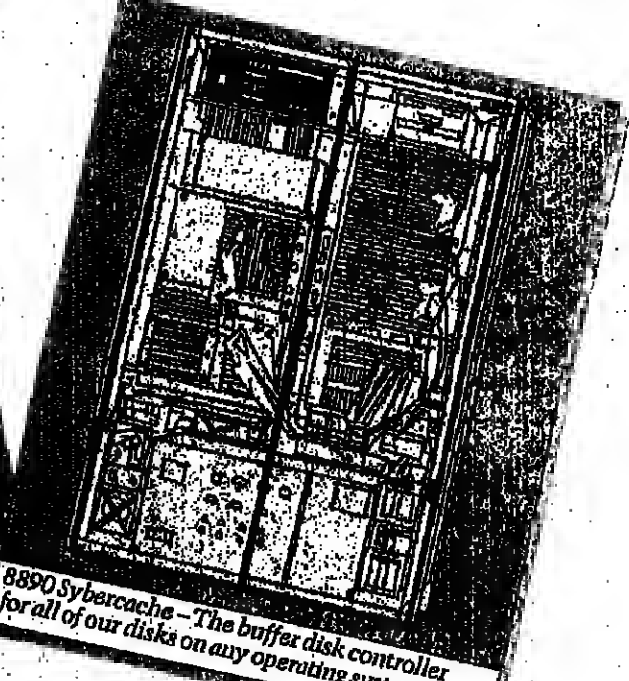


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Former Kode managers start up microcomputer maintenance firm

by Robert Parry
WILTSHIRE-based Kode Services have set up a new third party micro maintenance company. John May, ex-managing director of Kode Services, and Clive Marklew, promoted to general manager at Kode Services by May last Christmas, are heading their own company and aim to offer a wide-ranging service for a spread of popular micros and peripherals. The company is provisionally called Micro Systems Maintenance.

May left Kode Services at the end of January after eight years with the company, three and a half of them as managing director. "It could have been a happier parting," he says. "It was done without many words spoken."

"His reasons for leaving centre around a change of management style within the Kode Interna-

tional group, of which Kode Services is a profitable subsidiary.

Micro Systems Maintenance will not be prospecting Kode Services' existing customers, and May does not see the defections from Kode affecting Kode that much. "We are not looking for a fight, there is plenty of custom for everyone," he said.

This view is shared by Kode International's chief executive, Peter Smith, who is acting managing director for Kode Services. Smith took over the reins as chief executive last September.

May insists that the setting up of the new company was not pre-arranged. He was phoned within hours by people who had recently left Kode Services, or were about to do so, and the idea of setting up the new maintenance company was floated.

"It was an eye-opener how quickly it could be done - and

how helpful friends can be," said May. Financial backing, £75,000 from the bank and £25,000 raised by May and Marklew, the directors of a new enterprise, was in place within 24 hours according to May, and there are plenty of private backers ready to put some money in.

MAY: "Not looking for a fight."



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FLERT... "It will open up new horizons for NCR"

NCR makes its personal move

by Robert Parry
NCR last week made its bid to cash in on the personal boom, with a European product.

It launched a series of 8- and 16-bit machines, Decision Mate V, designed and built by NCR's German subsidiary - the first time a US manufacturer has turned to Europe for its micro.

"This is our first venture into the personal computer market," says NCR UK managing director Rex Fleet. "It will open up new horizons for NCR."

The company hopes that Decision Mate V will expand its user base beyond the small business systems market it already caters for with micros and minis like its

9010 and 9020 ranges. But it is under no illusion that it will get more than a modest share of the 75,000 personal computers of this type that it estimates will be sold in the UK this year.

The NCR machines use the most popular 8-bit and pseudo 16-bit processor chips, the Z80 and 8088 respectively, coupled with the common clutch of MS-DOS and CP/M family operating systems. They will be sold by a dealer organisation that NCR is establishing through a new independent Marketing Division, as well as by direct sales and through OEMs.

Alongside the machines, which start off at £1,825 for an 8-bit only,

64K machine with monochrome graphics and twin floppies, NCR has announced a local area network to link them together, and a Winchester disc file sharer called Modus. The network is Corvus Systems' Omninet with an NCR label, and will cost between £300 and £400 per connection. Modus will be about £7,000 or £8,000. Both are due in June.

The features of the series that NCR reckons will appeal to business users about to venture into personal computing for the first time, centre around ease of use. Peripheral and memory expansion is via external bus plugs, which do not require the users to delve into the innards of the machines.

Darkcrest goes ahead with new Vax product despite DEC lawsuit

by John Kavanagh

LONDON systems house Darkcrest has stepped up its attack on the Digital Equipment Corporation despite its multi-million pound legal battle with the US minicomputer giant. DEC specialist Darkcrest has launched a communications controller for the US firm's Vax range of 32-bit superminis.

Meanwhile Darkcrest and DEC's UK managing director, Darryl Barbe, have confirmed that both see the lawsuit as a fight to the finish, with no pulling out before the case gets to the courts.

Darkcrest expects to sell between 50 and 100 of its new single-board communications controllers every year. The products are made in the US by Emulex, and Darkcrest is the UK distributor.

Two communications controllers have been launched. The CS21/F handles 16 asynchronous lines with partial modem control and speeds of up to 19,200 bits a second. The CS11/F provides full modem control on up to 64 lines.

Both controllers can multiplex 16 lines through one or more modems to 16 remote sites, a feature claimed to be unique. Darkcrest

also scores over DEC in that the products are available across the Vax range, whereas DEC's eight-line equivalent is only offered with the new Vax-11/730, the smallest machine in the family.

Prices start at £2,300 for a 16-line controller.

DEC's lawsuit against Darkcrest came last summer when the US firm won a High Court order allowing it to search Darkcrest's premises for "evidence of misappropriation" of systems software.

It is claiming substantial damages for alleged copyright infringement, but Darkcrest says it has not pirated DEC software and is seeking exemplary eight-figure damages in return.

Last week DEC's Barbe repeated that the company had clearly defined policies covering the use of its software by users and systems houses.

"These policies are followed by virtually all our customers," he said. "We will protect our rights anywhere in the world."

But Peter Williams, operations director at Darkcrest, said, "We have done our utmost to ensure DEC gets all the money it is entitled to from our sales."

Traderpoint group formed

COMPUTING Services Association has formed a special interest group for member companies with ICL, Traderpoint agreements. But at the group's inaugural meeting last month, interest was not much in evidence - only seven of the 280 Traderpoint firms turned up.

"People aren't too interested in coming to meetings," said CSA

director Doug Eysen. "They're too busy making money."

According to Eysen, the thinking behind the formation of the group is to provide a focal point for CSA Traderpoint dealers, enabling a unified approach to top ICL management.

But he is wary of predicting a rosy future for the group.



"The main trouble is convincing the smaller fleet operator that he needs a computer"

Software system to 'police' truck drivers

by Andrew Thomas

THE Department of Transport is to use a Britlib system to police truck operators. Birmingham-based Lucas Kienzle has won an order to supply 11 of its M-POS modular fleet organisation systems to the DoT. These will be used to check tachograph charts for forged entries.

The M-POS system is written in Microsoft Basic for running under the CP/M86 operating system. Lucas Kienzle supplies a complete turnkey package, based on the Sirius 1 microcomputer, but marketing manager Dave Mitchell says the package will also run on the IBM Personal Computer and the Victor Sirius lookalike.

The two main parts of M-POS are Fleet Management Analysis and Drivers Hours Analysis. The hours law analysis covers legal requirements for drivers, restricting the number of hours of driving and

ensuring that the required number of rest breaks are taken.

Mitchell estimates that there are over two million vehicles across Europe producing tachograph charts each day, although Lucas Kienzle aims to sell only a few hundred systems a year.

"The main trouble we have is convincing the smaller fleet operator that he needs a computer," says Mitchell. "The large operators know what benefits a comprehensive fleet management system can give, but the small operators, and particularly the owner/drivers take the attitude that they have run their businesses by the seat of their pants for so long that they don't need any new-fangled device to do it for them."

"But as you've got to have a tachograph in the cab anyway, it makes sense to make full use of the information it records to help your business."

UK stake in US robot firm

by Kevin Pearson

BRITISH robotics was boosted in two deals last week - one with the US and the other with Japan.

Rediffusion Simulation, the flight simulator manufacturer and Rediffusion subsidiary, has taken a \$600,000 stake in US robotics manufacturer American Robot. The deal also gives the UK company exclusive manufacturing and marketing rights for American Robot's new Merlin robot system.

In the Japanese deal, two UK businessmen were appointed to the board of Dainichi Kiko, Japan's third largest maker of industrial robots. Such a move is virtually unprecedented in Anglo-Japanese business co-operation.

The men are John Tomlinson and David Walker, joint managing directors of Dainichi Sykes, the UK importer of Dainichi robots. Dainichi Sykes is wholly British-owned, and a subsidiary of the Yorkshire-based Sykes group of independent oil companies.

The move could lead to an Anglo-Japanese venture to make robots in Europe.

Tomlinson said he and Walker had been co-opted to the Dainichi board to help with the company's worldwide marketing effort.

He added that the move would also cement the relationship between Sykes and Dainichi.

The new Rediffusion deal will result in a subsidiary for the company, Rediffusion Robot Systems, based in Crawley, Sussex. Initially machines will be supplied from American Robot's US factory in Pittsburgh, in advance of Rediffusion's own manufacturing programme.

■ UK falls behind in robots race - See page 6.

'Cable TV for Paris' row

by Jack Gee

JACQUES CHIRAC, the Gaullist mayor of Paris, has stirred up a political storm by telling the French government it must give priority to laying a fibre optic television cable network for the capital.

Telecom Minister Louis Mezard has already announced a national plan for cabling a score of cities with fibre optic at a cost of six billion francs (\$500 million) over the next three years. But Paris is not on the government map which covers 1,500,000 homes.

Chirac says 500,000 Paris households must be cabled by 1989 when the Universal Exhibition is held in the capital to mark the bicentenary of the French Revolution.

Jacques Marete, a Paris city councillor and former Minister for Telecommunications, has drawn up a blueprint to cable 10,000 homes and offices next year with access to six television channels at a cost of 900 million (£10 million).

Then the Paris plan would gather momentum with 150,000 more homes connected between 1985 and 1987 and, in a final stage, a further 350,000 making a total of half-a-million households linked by cable TV.

Clearly pinpointing the political implications of his call for special treatment for Paris, Chirac said: "This will mean the end of State-controlled television as we now know it in France. It is necessary to do it."

Cable TV is now certain to become the subject of a lengthy political debate in France with bitter arguments during the campaign leading up to the municipal elections in March.

First city on the Telecom Ministry's list for cabling is Biarritz where a network covering 1,500 homes will go into service this summer. The Atlantic coast resort has been chosen because the neighbouring Pyrénées put it in a television shadow area.

"Then will come Lille" political stronghold of Prime Minister Pierre Mauroy, the city's mayor. But cabling is likely to be delayed by manufacturing problems. France's present produces 20,000 miles of fibre a year compared with Britain's 35,000 miles.

SALES BRIEF

Council buys £235,000 ICL system

ICL has sold a system based on ME29 computer to Harlow Council in Essex for £235,000.

The machine's first task will be to process the United Home Benefits system due to begin in April, and will eventually be linked up with council minicomputers to handle a wide range of smaller problems.

Military contract

US ARMY has lodged a \$4.4 million contract for computer software with Federal Data Systems, which is half owned by Datapoint. The system will be used to collect data on patients from US military hospitals around the world, and if all options for future developments are taken, the contract could swell to \$65 million in the next 10 years.

Do-it-yourself

BRITISH Petroleum has awarded Scicon, its systems house subsidiary, a £730,000 contract to supply communications processors made by the CHI Corporation. The processors replace Univac DCP40s installed two years ago and will link various BP sites.

Kiln control

PLANT at two Kent cement works will soon be controlled by a system supplied by Kent Process Control for £250,000. The set includes a Kent P4000 distributed system and will allow the kilns to be controlled remotely for protection of climber for cement.

Healthy order

FERRANTI has won orders worth over £250,000 for two laboratory data handling systems from Wessex Regional Health Authority. The systems will be used for biochemical applications.

Olivetti scooped

SEVEN-man band Kent Computer Consultants has beaten Olivetti to a big OEM contract from Plessey. The contract involves installation of Plessey System 23 VT with terminals and printers for time recording and costs of jobs.

CTL hat-trick

COMPUTER Technology has allowed its sale of five computers to the European Space Agency as an order for three more of its CTL 8086 systems from two contracts involved in development of ESA's the European communications satellite.

Defence deal

US CHIP maker Immos has taken a clutch of contracts worth \$2.2 million from the defence and electronics specialist Westinghouse. The contracts involve the IM5540 high performance static RAM for use in radar of the F-16 fighter plane and B-1 bomber.

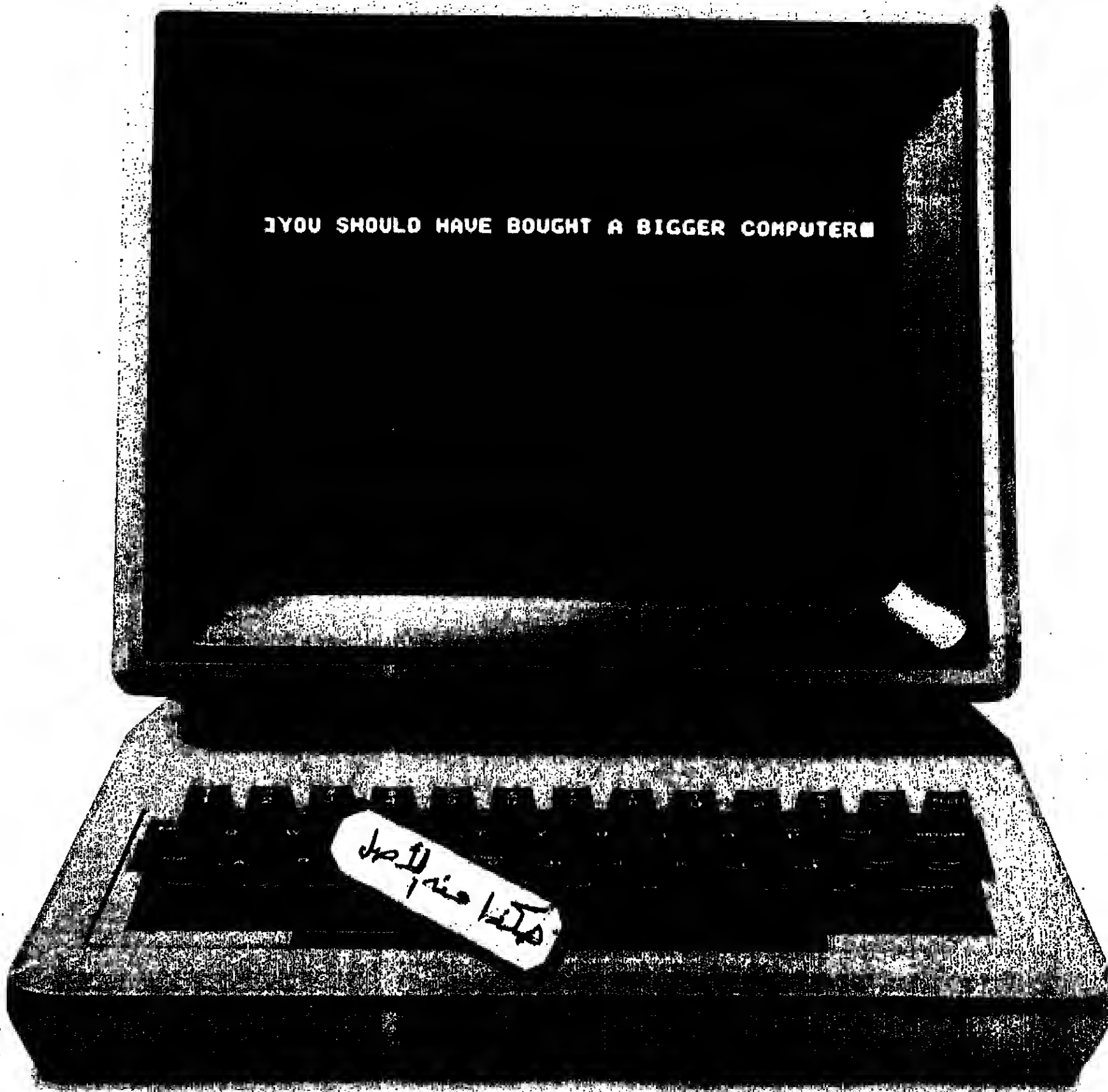
Effluent monitor

BRITISH Nuclear Fuels has ordered £250,000 worth of computer equipment for remote monitoring of water effluent at its Sellafield site. Kratos Computer Systems will supply the control hardware based on the PDP-11, and software based on its high level language Inscribe.

Hazard warning

TREND communications has won a £70,000 order for printer terminals from the Department of Transport for installation at motorway control offices. Police operators would send hazard warning signals remotely to terminals, which would set the instructions for display on electronic overhead displays at motorways.

What's the first thing a small computer will tell you?



Buying your first small computer could be your first big mistake.

You'll soon find out that it makes your business more efficient (in a lot of different ways)...

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Take the comprehensive range of Honeywell minicomputers, for instance.

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They start small, but they can expand more than any other minicomputer on the market.

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UK falling behind in robot race

by John Riley

UK INDUSTRY is slow to take up robots. And when it does it takes a piecemeal approach and buys foreign-made machines.

These points were made at the release last week of the robot population figures for Britain and Germany by the British Robot Association, BRA, and the German Institute for Production and Automation, IPA. In comparing the figures, the BRA thinks Britain needs to pull its socks up — and the Department of Industry agrees.

Although the UK's robot population rose from 713 in 1981 to 1,152 at the end of December 1982, the German population rose faster, from 2,300 to 3,500 over the same period.

Japan's robot population is now 13,000 and there are 6,250 robots in the US, taking BRA's definition of a robot as being a multi-axis machine with at least four axes.

The degree of robotisation can be calculated by taking the number of robots per 10,000 production workers in each country. Sweden, which has a total population of 1,300 robots, comes top with 17 per 10,000 workers, fol-

lowed by Japan with 10.7, and then West Germany with 2.6, the US with 2.3, Belgium with 2.1, France with 1.4 and finally the UK with only 0.9.

Tom Brock, secretary of the BRA, pointed out that British companies installed robots in ones and twos compared with German companies which installed them in batches. He warned, "It is foolish to expect accelerated growth for 1983 as the UK automobile industry was the biggest buyer in 1981-2 and has no extensive plans for 1983." But he is hopeful that the 2000 mark will be reached in 1984.

Of the 439 robots installed in Britain in 1982, and valued at about £15 million, 25% were from Japan, and 23% were British-made machines, mostly built by the American-owned company Unimation at Telford.

Dr Rolf Schraft, deputy director of the IPA, said that some 2,000 of the 3,500 German robots were made in Germany.

Both Brock and Schraft emphasised the importance of a systems approach to robotics. "The robot itself is only the tip of the iceberg," said Brock, "and the robot must be integrated into the



BROCK... "Robot itself is only the tip of the iceberg."

total manufacturing process."

Integration has been the key to Germany's success, according to Schraft, who stressed the importance of communication at all levels, including the workforce and designers.

At present the commonest single application of robots is spot welding, and other widely used applications include injection moulding, arc welding, surface coating and

machine tool servicing. The great potential is in assembly, but the problem at present, says Schraft, is that products are designed for manual assembly and a different approach is required when designing for automated assembly.

Chris Jackson, of the Department of Industry's Robot Support Programme, believes Britain can do better and the DoI is intensifying its awareness campaign.

US airlines guide to go online in the home

by Howard Karton

THE US Official Airlines Guide, which lists nearly all scheduled airline flights, is about to go online for consumers.

Beginning on May 1, individuals who pay the \$50 subscription fee will be able to use their home computers or terminals to access the database directly.

The information available in the Guide is currently available from a variety of sources — the printed editions (both North American and worldwide), which cost \$250 a year; the airlines themselves, most of which maintain free, 24-hour telephone inquiry services; and travel agents.

A spokeswoman acknowledged the free availability of OAG information, but explained that OAG Online is aimed primarily at regular business travellers who wish to exercise greater control over travel schedules.

OAG Inc, the publisher, is a division of Dun and Bradstreet, a major US company heavily involved in publishing and database services.

The electronic form of OAG has been tested for the past year on two consumer information networks in the US, offering free information to consumers. The number of users dropped sharply, when those two services began charging for information.

OAG Online requires an estimated 30,000 users, who will pay both a subscription and a usage fee, to make a profit.

Hardware under the hammer

by Philip Hunter

COMPUTERS will go under the hammer this spring with the major UK auction of second-hand hardware, in Reading. The auction is being organised by the Midlands company Chippings Auctioneers from the home of sister company One City of Chipping Norton.

"There is a lot of equipment floating about that people are getting rid of," says managing director John Lilley. "We are aiming only at equipment known to be working."

Most of the hardware is from IBM mainframes to the ZX81s — though preferred by IBM mainframes, he hopes.

Equipment has come from dealers looking for space, from IBM mainframes to the ZX81s — though preferred by IBM mainframes, he hopes.

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French telephone exchange tussle

by Jack Gee

FRANCE'S government is in the throes of a bitter argument between the Ministers responsible for industry and telecommunications over vital decisions for the long-term structure of telephone exchange design and manufacture.

At issue is the future of the ITT subsidiary Compagnie Generale de Constructions Telephoniques, which was nationalised last year.

Loss-making CGCT is doomed to be divided between the two State-controlled electronic giants, Thomson-CSF and CIT-Alcatel, a subsidiary of Compagnie Generale d'Electricite.

To streamline the French telephone industry, the Minister for Research and Industry, Jean-Pierre Chevènement, favours the creation of a single firm, Telephones de France, which would design and manufacture existing and future exchanges.

But Louis Mexandeau, Minister

for Telecommunications, says French Telecom and foreign telecom authorities must have access to two competing sources of supply.

CIT-Alcatel has a 44% share of the French market, Thomson 40%, and CGCT the remaining 16%. But CGCT makes outdated Pentaconta and Metaconta electro-mechanical exchanges. Thomson's M-20 and market leader CIT-Alcatel's B-10 exchanges are time division all-electronic systems.

So the urgent problem is not merely to decide on the structure of the industry but to find work for CGCT's staff of 7,500 whose exchanges no longer fill the company's order books.

A major challenge comes from the recent alliance between AT&T and Philips to develop and market a new generation of switching systems.

Georges Pebereau, chairman of CIT-Alcatel, said in Paris that his

firm would not complain if CGCT was absorbed by Thomson, and he expressed "sang froid" over the AT&T pact with the Dutch multinational.

Pebereau said, "CGCT is not a lame duck. It will need to convert its factories and solve its financial problems. That will take a lot of money and management skill."

Pierre Lestrade, whom the government has appointed chairman of CGCT since the State takeover, says the firm urgently needs one billion francs (£100 million) to avoid bankruptcy and dismissal of its staff.

French Telecom is ready to place an order with CGCT for 200,000 electro-mechanical phone lines, phone sets equipped for detailed subscriber billing.

But Lestrade says orders for obsolete equipment will not solve the company's long-term problems. "They cannot compete in the marketplace," he added.



WILLIAMSON... Aiming for double during 1983.

Metal giant moves into software

by George Black

A £530 MILLION UK heavy industry giant is to move into software.

Imperial Metal Industries early this month set up its computer division as an independent computing services company specialising in IBM 8100 machines.

The metals group announced that its in-house computing division was being launched as a service to industry. The 140-strong Birmingham-based division deals in proprietary software, packages and complete systems, based on IBM, Datapoint and Commodore equipment.

The new company starts life with a £3.5 million turnover, of which about £250,000 is earned outside the group. IMI Computing managing director David Williamson said he hoped that figure would be doubled during 1983.

IMI has IBM 3033 and IBM 370 mainframes which handle some 45,000 transactions a day.

Last week IMI was inadvertently referred to as EMI.

Credit card automation to be decided soon

by George Black

A DECISION is expected in the middle of the year on a multi-million pound plan to computerise the UK's credit card system.

Software house Logica has completed a two-month study of the scheme for online checking of credit card payments by customers to retailers. The idea is for automatic deductions to be made from the payer's account.

A four-month consultation period now begins, in which the banks and credit card companies seek the views of retailers and users. The hope is that customers will benefit by not having to carry either a cheque book or cash.

The Committee of London Clearing Banks asked Logica to make a study of the design of the network, which is likely to be one of the biggest and most complicated financial systems in the world.

If there are no hitches, the basis

for the network could be laid by 1985 or 1986, with a few thousand terminals connected. This might build up to 100,000 or 150,000 terminals after 10 years, it is hoped.

A Logica spokesman commented: "The sheer volume of transactions is going to be bigger than anything else we have ever looked into."

Successful implementation of the project could also cut out card fraud, bankers believe. The basis for the Electronic Funds Transfer/Point of Sale (EFTPOS) scheme is likely to be British Telecom's packet-switched service, PSS.

The aim is that any card transaction will be verified in a maximum of 15 seconds.

The organisers are keen to convince retailers that the costs involved for them will not be excessive.

Cash offer settles EDP dispute

THE strike at Sheffield software house BDP ended last week after nearly nine months with a cash settlement for 17 strikers and the withdrawal of their industrial tribunal cases.

Neither the union, the Association of Scientific, Technical and Managerial Staff, nor BDP would disclose the figure. Mike Frizelle, local ASTMS officer, says that the sum "leaves the £9,000 or so offered by BDP last November standing."

Richard Jowitt, managing director of EDP, claims that it is not substantially more than the figure on offer two-and-a-half months ago.

One striker who was ineligible to take his case to the tribunal as he had worked at BDP for less than a year when dismissed will, according to Frizelle, receive a share of the other strikers' cash.

COMPUTASTARS



Sponsored by Computer Weekly

Get in quickly for Computastars

by Andrew Thomas

ONLY two weeks to the close of entries for this year's Computastars, and if you don't want to be disappointed, get your form off to the organisers quickly. Places are strictly limited and will be allocated on a first come, first served basis.

Full details of the competition can be found in the February 3 issue of *Computer Weekly*, or can be obtained from the organisers at the address on the entry coupon.

Both men's and women's teams can enter, each comprising between three and five members. The cost is £37.50 per team, with an additional payment of £20 for the teams reaching the UK final.

not the European final as last week. There will also be a charge for the European final, which will be decided when location is finalised.

Alongside the main competition runs the tug-of-war contest, putting. Teams of six men and women can enter this event, long as they are not living in the same house.

Entry cost for this event and determination of the winners will be decided by the organisers.

If you have any queries about Computastars, don't contact the organisers, but contact the answers in *Computer Weekly*. The answers in *Computer Weekly* are in *Computer Weekly*. The answers in *Computer Weekly* are in *Computer Weekly*.

COMPUTASTARS ENTRY FORM

We have read and accept the conditions of entry for the Computastars/Computastars 1983 and would like to enter:

Main competition Men's teams Women's teams
Small units Men's teams Women's teams
Veterans Men's teams Women's teams
Computastars Men's teams Women's teams

Names of team(s)
Company
Address
Telephone Extension

Name of contact
Signature of DP manager or equivalent authority
Position held

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Victoria Wine online

by Philip Hunter

ONE of the world's largest retail shop communications networks is being installed by the Victoria Wine chain to bring its 920 shops online. The £5 million system links shop tills with a central IBM computer in a joint venture between Centre-File, the computer services subsidiary of National Westminster Bank, and Thoro EMI Microcomputers.

Thoro EMI eventually will supply 1,500 point-of-sale terminals with keyboards for entering each sale, deductions being made from stock levels stored on attached floppy disks. Each night the system will take advantage of British Telecom's prepaid midnight line, costing £200 a year, to send the day's sales data to Centre-File's IBM 3033 mainframe in London.

Centre-File will process the information once a week, and send

trading details on a magnetic tape once a month to Victoria Wine's central offices in Cheshire.

The system, code-named Vicky, enables individual stores to watch stock levels closely for astute re-ordering.

"And now we can identify what products are being shoplifted," says Victoria Wine managing director Eric Colwell.

A likely future development will be to link the network to computers of the liquor suppliers for automatic re-ordering. Meanwhile both Centre-File and Thoro EMI say that similar systems are in the offing for other food-retail chains.

"We have a new commitment to point-of-sale," says Thoro EMI general manager Colin Bates. The cost of teleprocessing software was cited by all three parties for the choice of IBM central hardware.

Varsity £100,000 sales

by John Riley

SALFORD University has pulled in more than £100,000 in just over six months from sales of its own software.

The university-developed Fortran 77 compiler for Prime machines has notched up 50 sales since it was launched commercially last June.

The compiler was developed by three members of the computing services staff, Dave Valence, David Bailey and Nigel Ross, originally for in-house use. But as the version they came up with is, according to Valence, five times faster, more compact, and has better diagnostic capabilities than Prime's, they decided to market it.

Since June 1982 there have been

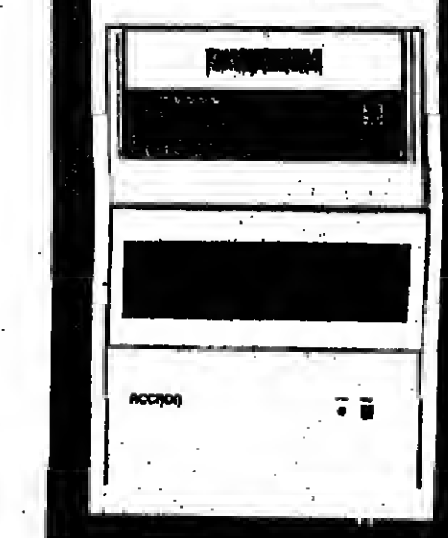
25 sales in this country and a further 25 abroad, including the US, Australia, New Zealand and Sweden, and the team is now trying to penetrate Europe.

The team has a "good relationship with Prime," said Valence, who pointed out that Prime benefited by spin-off demand for its hardware.

"This goes a long way to showing that we are not just an ivory tower, and that we can produce competitive software for use in commerce and education," he said.

The cash is going towards improving facilities within the University Computing Service which was hit by government cutbacks last year.

What can sixteen CP/M* users have in common?



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Unlike single-CPU investing multi-user systems (e.g. MP4, OASIS, MVT-RAMOS etc) where system throughput degrades as additional users are added, the ACCRON—MPS system has no CPU degradation at all. Since each user has its own self-contained processor and memory you can now have microcomputer performance at micro computer prices. It's Expandable.

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since we manufacture ACCRON ourselves here in Britain, there is never a delay over waiting for a replacement part.

Stability

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Dealers and OEM's, Get The Facts

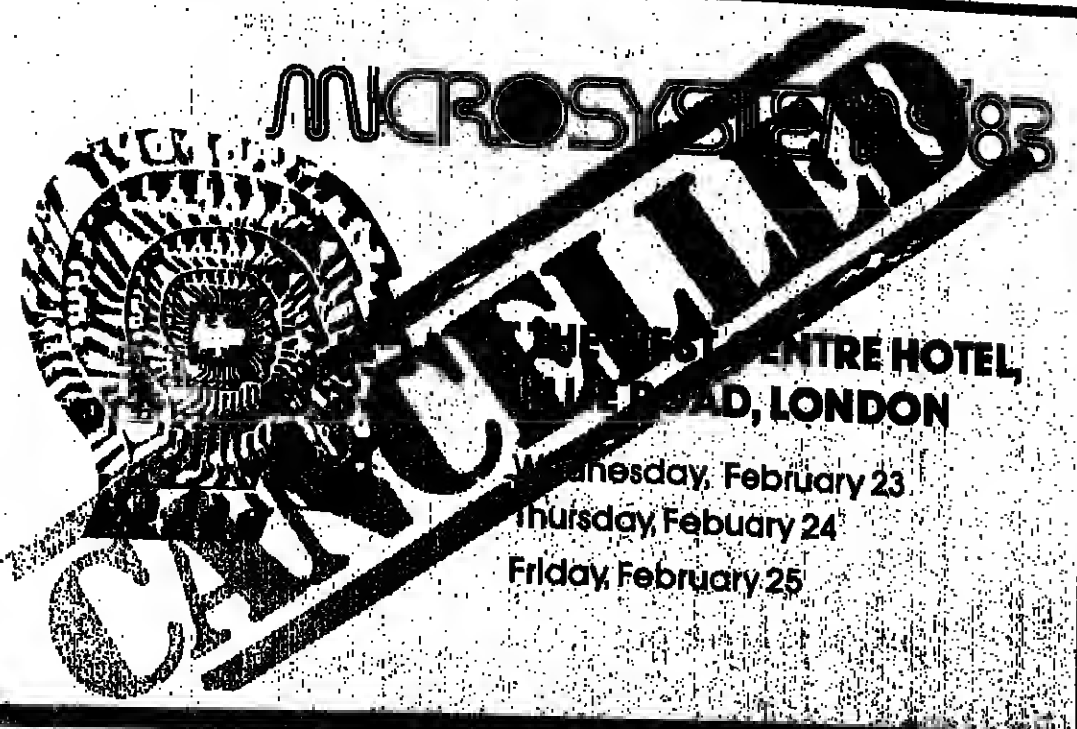
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Trade restrictions make half the US market inaccessible to foreign firms, says Kevin Cahill

Land of the free— for everything except trade

ANY UK manufacturer hoping to achieve real market growth similar to companies like Apple must go to the US. Unless the company is very small and supplies relatively insignificant products solely to the end user market, it will find in the US market some of the most severe restrictions on free trade imposed anywhere in the world.

Centrepiece of the trade restrictions imposed by the land of free enterprise is the Buy American Act of 1933. This Act was brought in partly to meet a Buy British campaign running in the UK at the time, and partly to offset the effects of the recession. It effectively prevents foreign companies—particularly British ones—from offering their goods in the federal agencies whose purchasing power constitutes about half the US market.

The Buy American Act now operates in conjunction with the General Agreement on Trade and Tariffs jointly signed in 1981 after much harrowing negotiation by the US and many other countries, including the UK and Japan.

The declared object of the GATT agreement was to eliminate trade barriers between countries.

In fact, GATT represented a diplomatic failure for the UK and a triumph for American protectionism.

The US went in a series of exclusions, covering almost all the federal agencies originally covered by the 1933 legislation.

One of the exclusions is the US Department of Transport and this led Sir Christopher Laidlaw, ICL chairman, to remark at the recent annual meeting that in the USICL would have been specifically excluded from winning contracts similar to one from the Driver and Vehicle Licensing Centre at Swansea.

Sir Christopher's remarks were particularly bitter because ICL was excluded from this prestige

contract essentially because the UK's purchasing agency, the OCTA, refused to change the timetable for tendering by a few months—something unheard of in the US. And IBM in its barely disguised role as a sovereign power, actually threatened the UK government with the GATT rules.

Many UK commentators feel that IBM may live to rue the day, both at Swansea and elsewhere.

By handing the Swansea contract to the Americans, the UK government has quite specifically opened up a public sector contract which would not be available to British firms in the US.

The very presence of IBM on the site gives UK authorities an ideal case in point to the US in their GATT negotiations. Additionally, the government may have felt, as many in the industry do, that Swansea is a can of worms which might well devour the still emerging credibility of the convalescent ICL, whose last passage through Swansea did little for the company's credibility.

But GATT is only the tip of the iceberg when it comes to the various ways the US acts to curb the sale of goods, particularly computers and electronic devices, manufactured by its allies. Attached to the US Embassy in Paris is an obscure and secretive multinational body called Cocom.

The object of this organisation is to monitor and control the transfer of technology from members of the Western alliance, including NATO members Norway and Japan, to the Communist bloc, including China and Cuba.

The Cocom secretariat is manned by a single full-time official, who never answers the telephone and who never speaks to the Press, and a part-time secretary no loan from the American Embassy next door.

Cocom operates according to a series of lists of prohibited goods,

and a series of reviews of selected neutral equipment. The most recent victims of Cocom denying tactics were the two Japanese computer giants, Hitachi and Fujitsu.

Both companies received orders from China for medium-size mainframes in 1980, for use in Beijing government departments. The technology in both cases was mature, the machines were mid-range, and contained nothing sensitive.

Yet neither machine was approved for delivery until early 1982.

In the meantime, both Japanese companies lost valuable marketing momentum, and a series of US rivals, including Burroughs and Data General, took orders and delivered essentially similar machines.

But the Japanese are not the only victims of Cocom's favouritism—the US policy.

Computer room at the Driver and Vehicle Licensing Centre in Swansea. Will IBM rue the day it won the order?

sions made by the US Commerce Department and by Cocom.

The UK government, in private if not in public, is also well aware of the observation made by a recent venture capital company director. He showed that a US government study had found that the top 1,000 companies in the US had, overall, made a net contribution to increased employment in the US over the past 20 years.

Jobs created by the US multinationals in the UK, valuable though they are, are but a fraction of the jobs which would be created by small local companies.

Not only is the UK market dominated by US companies; but US companies have opportunities in

potential for small companies, particularly start-ups.

In the US itself, the current conservatism in both government and public opinion has led to near paranoid reactions over the supply of technology to the Eastern bloc.

This paranoia has in turn been used, some would say abused, by the US government in ways that affect UK companies trading in the UK, Europe and Eastern Europe. Last autumn, the US Assistant Secretary of Defence, Richard Perle, visited the UK and briefed the top men in the UK electronics industry on the nature of Soviet technology acquisition policy and the threat it posed to the West.

He was politely received, not least because many UK electronic companies are already vendors in a small way to the US military, and hope to increase their sales.

Arguing with the Assistant Secretary of Defence is not the way to influence people and win contracts, as one of those who met Perle puts it.

Perle said Soviet acquisitions of Western technology were saving Russia millions in R&D each year, costing the West millions in counter measures and were increasing the military capability of the Soviets.

He produced dramatic slides of alleged Soviet sonar buoys which used well-known Western chips, said to be from Texas Instruments, to drive the electronics.

At least one senior UK manager was downright sceptical about the evidence Perle produced. "Sonar markers for submarines are constantly being picked up by both Soviet and US submarines," he said.

This source also suggested some reluctance on the part of Perle—who was described as something of a missionary—actually to produce the sonar buoy.

Perle suggested to the UK bosses that unless the drain to the Soviets was stopped, the US would cease to issue licences for export of key technology to its allies.

The first victim of the new attitude was France, recently denied export licences for two Cray machines from the US.

In California about six top US electronics executives have been shown a draft proposal which outlines the measures the US is considering. One of the executives said that if the list was ever implemented, his company would lose half its overseas business straight away.

But because of Cocom, the US can exercise control over exports of companies such as ICL which have long-standing and completely legitimate business in Russia.

UK trade officials are currently non-committal about this state of affairs, although some are suggesting that only the delicacy of the situation has prevented a public explosion.

The Prime Minister is known to be worried about what she has been told by people like Sir Christopher Laidlaw—that it is not a woman to allow matters to slide for long periods.

Action of a positive and public nature is expected soon, according to reports from the Commons.

What the Buy American Act means

THE Buy American Act gives a competitive advantage to bidders offering US-made goods to US government departments and agencies. It is enacted to combat the effects of a "Buy British" policy which was then in effect in the UK.

The Act and regulations under it are complex but the elements are:

(a) The Act requires that US agencies only procure "domestic products." To qualify as a "domestic product," a manufactured item must be manufactured in the US, and more than 50% of its components (by value) must be manufactured in the US.

(b) There are, however, exceptions to the rule that the government must procure domestic products for its own use. These cases are the government's procurement of similar foreign-made products.

If the cost of domestic products is unreasonably high, the procurement agency head determines that it is in the public interest to procure domestic products. If domestic products are not reasonably available in satisfactory quantities and satisfactory quality, and if end product is for use outside the US.

On January 1 1981 the US government, with the EEC and other developed and developing countries, implemented the GATT Agreement on Government Procurement. The purpose of the Agreement is to open up the procurement of goods and services to free and open competition from suppliers in those States. Procurement requirements are to be published and tendering procedures are to be made available to all suppliers.

The requirements of non-discrimination apply where the products or services are only available from a single supplier where there is a genuine emergency over the procurement of goods and services.

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MICRO NEWS

Apollo into new domain with low-end 32-bit unit

HIGH performance micro manufacturer Apollo Computer is moving into application areas with additions to its Domain networking micros. The high performance Domain workstations, based around the Motorola 68000 family of 16/32-bit chips, have been joined by a lower-cost machine, coming in at below £10,000 but giving 32-bit virtual memory mainframe power.

Along with this unit, called the DN300, comes an intelligent controller to handle peripherals and communications around the Domain network, DSP80, and an X.25 communications gateway which opens up communications between Domain networks and remote computer systems.

And there is more to come soon, the high end of the range. The price of the original system, at more than double that of the DN300, meant that Apollo was really only looking at the high CAD and modelling market.

With the new unit it can start turning towards production engineering applications, text preparation for typesetting, and even standalone business graphics.

"We want computers in the office space, along with the engineers and scientists," says Apollo president Bill Poduska, "though we'd just as soon have things like the line printers removed from the office."

"We put high performance mainframe capability on a desktop, and integrate it into a network, so you have machines dedicated to individuals rather than people scurrying around a shared mainframe."

Apollo's spread downwards in price depends very much on keeping up with technology. It claims to be the first company to have a production system using the 68010 processor from Motorola. Coupled with a memory management unit this gives a virtual address space of 16 Mbytes to each of 15 concurrent

user processes. Experience with the 68010—which does what the 68000 always should have done, says Apollo—leaves it well placed to take advantage of forthcoming Motorola technology like the 68020 processor.

The basic DN300 comes with half a megabyte of main memory, expandable to 1.5 Mbytes, and a bit mapped high resolution screen. It costs £9,250 in this basic form. A 34 Mbyte Winchester and a floppy disc drive can be added for about £10,000.

The operating system used is Apollo's Agilis, common to all the Domain processors, and an implementation of Unix System III, called AUX, will be added soon. Communications with other computer systems include 3270 and Hsp, as well as the X.25 and Ethernet capabilities.

Most application software still

centres around CAD uses such as finite element analysis, but Apollo is moving towards office-type applications as add-ons to these.

UK managing director David Howes still sees his market being this engineering/scientific application, though the systems houses which make up 35% of the UK buyers of Domain machines may well see it differently.

The screen management system allows users to overlay views on the screen, with one window per process, and the cursor can be moved around the screen using a touchpad, echoing features in Apple's new Lisa machine which is aimed firmly at commercial applications.

But for the moment the competition is in the scientific market, and comes mainly from the traditional time-sharing suppliers IBM, DEC and Prime.

Micro News is compiled by Robert Parry

PODUSKA... "High performance mainframe capability on a desk top."

Intel redoubles efforts in high performance processor market

INTEL is keeping up the pressure in the high performance microprocessor stakes. It has come out with an evaluation kit for its IAPX 286 processor, and announced a clutch of memory boards and systems software for the 286 to be available from the summer.

The evaluation kit sells for £7,900 in the UK and is based around the ISBC 286/10 processor board, available now in engineering samples and scheduled for July in production volumes. The 286 chip itself should be in volume production in March or April.

The new memory boards, the CX series, have been brought in with a new bus grafted on to the general Multibus architecture. This ILBX, for local bus extension, allows off-board memory to appear as though it was located on the processor board.

Four boards can be connected to the processor through the ILBX bus, with memory transfers taking place at the same speed as from the on-board memory.

The maximum memory that can be added in this way is 16 Mbytes, the physical address space of the 286 processor, though the practical limit at the moment is two Mbytes, set by the memory carrying capacity of the CX boards. The memory boards are dual ported, allowing data transfer to Multibus as well as ILBX.

The ILBX bus is also to be connected through an interface board to Intel's high speed I/O path

Multichannel. Through this interface, ISBC 580, large block transfer of data between I/O devices and system memory can take place along the high speed ILBX, and then be moved around the system via Multibus.

"Multibus is now becoming very much a systems control bus," says Intel's OEM operation general manager Tom Kihnan.

"The SBX bus gives on-board I/O expansion, taking away I/O peaks; Multichannel gives the high speed I/O capability; and now the ILBX takes away the memory access peak, moving memory contents quickly to a particular processor."

With the new 286/10 board, which will cost about £2,500 in single units when in production in July, users will be able to upgrade system speed by replacing current 8086-based boards in Multibus systems. This should give a performance increase of about a factor of three, says Kihnan.

The operating system for the 286, iRMK 286, is now available in the reduced form—limited to the real address mode—so applications written under iRMK 86 can be moved straight across to the 286/10 board.

The full virtual address mode operating system, iRMK 286V, is scheduled for the summer, and an implementation of the seemingly omnipresent Unix operating system, in its Xenix incarnation, is under way.

Japanese semi firms fear links with US

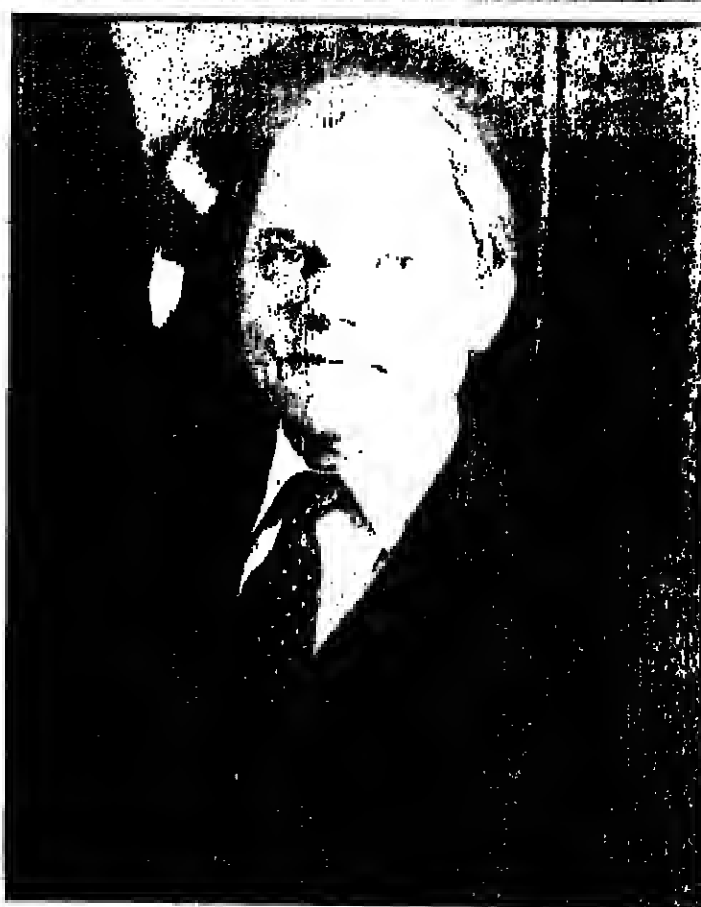
THE feud between American and Japanese semiconductor producers lives on. The prospect of increasing exchange of information between US and Japanese enterprises in the military field, which has arisen out of Japanese Prime Minister Yasuhiro Nakasone's recent visit to the US, has led to fears in Japan that the plea for closer links on military technology is a way of getting at the general purpose high technologies.

At the same time that US companies involved in military work are trying to gain access to Japanese technology, semiconductor companies are pushing the US government to intensify efforts to open up the Japanese market for

their products. "We are asking the government to continue negotiations directly to reach accord on opening up the Japanese market," says Warren Davis, director of government affairs at the US Semiconductor Industry Association.

"The market is *de facto* closed, except for the very newest chips—which they let in until a Japanese company can copy it—which makes it difficult for US companies to sell or invest in Japan."

Davis says the SIA is looking for free trade between the two countries, and is strongly backing a reciprocal trade pact that would allow the US government to insist on fair trading.



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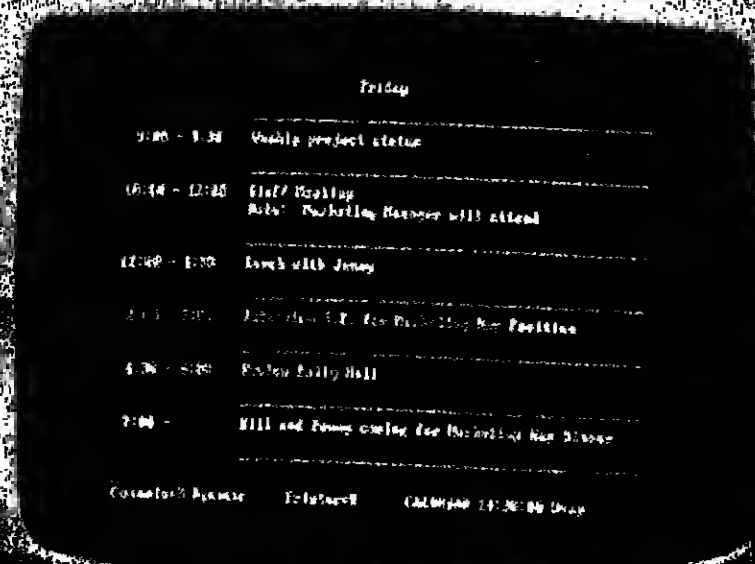
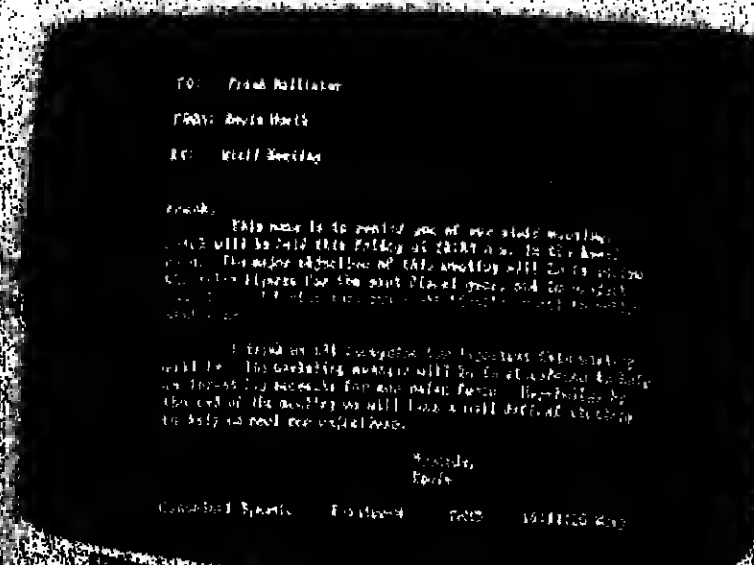
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SOFTWARE FILE

SDS 'best solution available'

by George Black
SOFTWARE Sciences' SDS tool is 'the best solution available in the UK today for a software development database', according to a government-commissioned report.

The report, by BP's software subsidiary Seicon, is the first in a series for the Department of Industry which is seeking to pool the latest knowledge on the value of such tools. Seicon uses SDS under a Ministry of Defence contract.

The report says that a lot of training is involved in the use of SDS. Its progress has been difficult and is still not complete, says Seicon, but there is praise for its flexibility and robustness.

The DoI is co-ordinating a public sector drive to harmonise software tools and methodologies for large, real time systems. Participants will be the Ministry of Defence, the Civil Aviation Authority, British Gas, British Steel, British Telecom, the Central Electricity Generating Board, the South of Scotland Electricity Board, Ferranti and Pactal.

The decision to mount the harmonisation drive stems from recommendations in last year's report by the National Economic Development Council. The Council lamented the present "fragmentation of effort" by British software methods R&D bodies, both public and private.

The co-ordinated approach of Toshiba was contrasted with the disarray of most UK software products. A notable exception quoted was British Telecom's System X project. The NEDC said British bespoke software rightly had a high reputation, but more standard packages were needed as development costs soared and greater efficiency must be achieved.

The inquiry is to look first at non-language-specific tools, but will not cover Ada, Ape or any of the Alvey committee's proposals. Meanwhile the American Defence Department is to spend an extra \$27 million over the next six years above its estimated \$600-700 million budget for the period on software tools development. This is calculated to generate a sixfold increase in the quantity of programs created. The US Defence Department has current software costs of \$5-6 billion a year, expected to rise to \$32 billion a year by 1990.

The boost to the American investment is intended to fend off the challenge from Britain, France and Japan.

'Don't believe everything a computer tells you'

by Andrew Thomas
PEOPLE are too glib when it comes to computers, according to a new report* from the US. International Resource Development claims, in a 265-page survey, that sophisticated software produces such impressive output that it is accepted as gospel even if the figures are rubbish.

IRD project director Stephen Caswell summed it up: "Because the output looks official, it becomes hard not to believe it." I can vouch for the accuracy of Caswell's observation. During my time at ICL, it befell me to prepare statistics on machine availability, performance and so on. These figures were prepared from handwritten logs, prepared by the operators, the arithmetic being handled by a pocket calculator.

The results were typed up and given to the boss who would use them as ammunition in his weekly review meetings. After a while I decided that the figures would look better if they were produced by one of the computers, so I set up a file which I would edit each week, then list off the required number of copies.

At the next review meeting, the boss was berating the DP manager for failing to achieve the target 97% uptime. The DPM argued that he had, in fact, managed 98% that week, and bad figures to prove it.

"Don't argue with me, my figures are produced by the machine, they can't be wrong," replied the boss.

I sat quietly, keeping a straight face, and toying with my calculator.

Accounts package for UK

By George Black
McCORMACK & Dodge's accounts payable system A/P Plus has been brought to Britain by the Rio Tinto Zinc subsidiary RTZ Computing Services.

A/P Plus, with 700 users worldwide, has been taken on by six UK organisations, including Sainsbury's, Nestlé's and a local authority.

Bristol-based RTZ has anglicised the package for use on IBM machines and plans to release an ICL version in June. McCormack & Dodge, a major rival to Management Science America in the financial software field in the US, has been working through RTZ to try to penetrate the European market since 1978.

M&D's G/L Plus general ledger system, which now has 1,000 users, was adapted by RTZ for use in this country in 1979 and has also been prepared for ICL users. G/L Plus also has Honeywell and Univac versions.

Now RTZ is working on conversion of the M&D purchase order system P/O Plus for issue next January in an IBM version and later for ICL machinery.

"Most British companies can't tell what their expenses are going to be in three months' time," said product manager Roger Barnes. "American managers have shown themselves far less conservative and more willing to computerise. But next year the attitude here will have changed. Managers are going to want to know exactly what their commitments will be."

Purchase order systems had been the Cinderella of accounting, he said. Many firms wasted money in this way - for instance, by not promptly reconciling overpaid VAT.

RTZ, which has been growing at 40% per year, now has about 100 staff, half of whom are engaged on the software operation.



LOWREY... "Our machines can do things the PC can't."

Software support sought for advanced terminal

CONVERGENT Technologies' advanced Turbo workstations are to get a further push into the booming micro market and the company is looking for software houses to help it. Sole UK distributor Computer Technology Ltd (CTL of Hemel Hempstead), is mounting a two-pronged attack, which is expected to bring the announcement of some big contracts soon.

One prong is through direct sales to top companies and government bodies; the other is through software packages for the "vertical", trade-specific markets.

A team of 12 is working to get the new Turbo workstations into some of the country's biggest firms.

The arrival of IBM's Personal Computer has done us a lot of good," says Turbo product manager Gary Lowrey. "It has shown that our high performance machines can do things that the PC can't. IBM users can link up to it quickly and have all the advantages of distributed processing."

IBM, ICL and Honeywell mainframe users are seen as CTL's growth area. Burroughs users already get the workstation under Burroughs' own B20 label. The machine also appears in France under Thomson-CSF and in the US under NCR labels.

CTL is teaming up with software houses such as AE Data Services to provide packages for individual users. ADS, a subsidiary of Electrolube computer leasing products, has just moved its Books package on to the Turbo.

ADS marketing director Chris King said they had already sold it on the Series 8000 machine to publishers George Allen & Unwin, mapmakers Bartholomews and to the Aberdeen University library. CTL is not alone in exploring the field. Technologie of Wrexham, which buys CTL's Turbos, has sold some £300,000 worth of systems to brewers Greenall Whitley and is seeking expansion into the drinks business.

The Wordplex 80-4 with Dual Ground Working



Dual Ground Working permits these familiar electronic office routines (and many others) and practically any combination of the above to run concurrently in one machine. As both are in 'foreground' at the same time the Wordplex 80-4 is effectively two systems in one.

the first word processor based multi-function office system

Because of the unique, Wordplex-developed Gemini operating system's ability to provide Dual Ground Working the Wordplex 80-4 has the power of two systems in one.

The 80-4 has the additional benefit of Winchester disk storage - 10 MB capacity sealed disk unit - while transferable storage facilities are provided by a 500 KB floppy diskette.

The system is completed with the 45 ops top-quality Echo character printer.

Wordplex provides a complete range of compatible and modular office systems. For example, additional application software or workstations may be added to the 80-4. If even greater storage and processing power is required, the 80-4 system can be integrated with Wordplex shared-resource systems.

Development from one system to another is so smooth and logical that operators require instruction only on the additional facilities, resulting in much greater efficiency.

WORDPLEX

word processors office systems

Please send the above information on the Wordplex 80-4 with Dual Ground Working.

Name _____

Company _____

Address _____

Tel. no. _____

Please return this coupon to: Richard Kemp, General Manager, Wordplex Ltd, FREEPORT, No 44pp, Reading RG1 1HL. Telephone 0734 586621, Telex 646602.

The logo, tagline and names of DRI products are either trademarks or registered trademarks of Digital Research Inc.

UK computer industry link-up to top US funds

THE UK will shortly have access to some of the most influential computer industry venture capital funds in the US via an Irish finance company.

Inishtech, based in Dublin, will be listing its shares on the Dublin Stock Exchange later this week. This will give UK investors access to Inishtech stock, which will automatically be available on the UK Stock Exchange.

The fund has direct links with two of the most important sources of venture capital for computer companies in America: Boston-based Burr, Egan and Delege, and Schooner Capital Corporation.

Frank Kenny, managing director of Inishtech, says the form of investment known as venture capital has virtually flooded the US computer industry into existence.

In the Bay area of San Francisco, venture capital companies in partnership with the computer and

high technology industry are credited with creating over 1,000,000 jobs in the past 20 years, says Kenny.

From an Irish standpoint Inishtech is an "offshore" fund because the Republic now has extensive exchange control regulations.

The UK has no such restraints, and British investors are free to invest in Inishtech via the London Stock Exchange.

A significant number of UK investment institutions, impressed by the fund's US connections, have already requested prospectuses and look set to follow the Irish institutions which have put up the first £2 million.

Kenny is careful to point out that while the thrust of the fund is in the direction of investment in the US, there is no bar on suitable UK companies approaching Inishtech.

He notes that if the UK interest

materialises in the form of shareholdings in the fund, he and his partners would look more specifically at the UK in placing investments.

One of the important points made by Kenny is a direct refutation of company failure figures produced by the banks and financial institutions in the UK.

He cites a recent study in the US which showed that the failure rate for venture capital funded companies was four out of 10, and not the four out of five figure often seen in the UK.

Of the 100 companies surveyed for the report mentioned by Kenny, only 15 were outright failures. The next 25 showed a partial loss, often remedied by merger or sale. The following 29 showed anything from break-even to a return of twice the sum invested.

Moving into the last 30% of companies, 20 showed a return of

two to five times the investment made in the company and eight companies made a return on investment of five to ten times.

The overall rate of return on all venture capital funds in the US over the past ten years has been about 27%.

Kenny's partners in the Inishtech venture, Burr, Egan and Delege, have out-performed the other funds substantially, turning in 40% return on investors' funds over the decade.

Noticeably, BE&D have been significant investors in computer companies (see figure 1).

The star performer in the pack was obviously Tandem, and Inishtech provides a detailed guide on the way the company was funded (see figure 2).

Kenny notes that in a typical venture capital situation, failure comes early; success takes time to mature.



KENNY... "Failure comes early; success takes time."

Investment successes

BURR, Egan and Delege's most notable computer company successes include:

Company	Funds Invested	Investment Value
Dynalco	\$333,000	\$960,000
Datal	\$100,000	\$1,068,000
Dysan	\$440,000	\$2,112,000
First Data	\$88,000	\$1,806,000
Printronics	\$200,000	\$4,157,000
Tandem Computers	\$100,000	\$1,738,000
Tandem Corporation	\$1,750,000	\$78,956,000
Triad Systems	\$2,082,000	\$16,192,000
Vector Graphic	\$515,000	\$9,980,000

Figure 1.

How Tandem was funded

*Started in February 1976: Management Ex-Perfec.
*Product: Disc drives for microcomputers.
*Seed funding: \$20,000 by management and \$300,000 by adviser to Inishtech. Inishtech adviser invested in later rounds, \$1,050,000 in 1978, \$400,000 in 1979.

	1976	1977	1978	1979	1980
Sales (m)	\$0.18	\$1.4	\$3.2	\$5.6	\$22.7
Income	\$0.020	\$0.089	\$0.163	\$0.161	\$1.507
	\$0.01	\$0.03	\$0.04	\$0.02	\$0.21

*Inishtech adviser invested \$1.75 million. Realised \$7.16 million in 1981 on sale of part of holding. Value of balance \$71.8 million. Return of 45 times funds invested.

Figure 2.

North Yorkshire - High Tech knowledgability

Fast growing 'high tech' industries need room to grow with good communications, a growing and flexible workforce, low operating costs and a superb environment to which scarce, highly skilled staff are attracted. In fact, a place just like North Yorkshire.

If you're wanting to develop a thriving high tech industry in a beautiful environment... you should take a look at North Yorkshire

TELEPHONE

Mike Cuff
0609 3123

Or cut out this ad, attach your business card or letterhead and return it to...

The Industrial Development Department,
North Yorkshire County Council,
County Hall, Northallerton,
North Yorkshire DL7 8AD.
and we will send you further information.

North Yorkshire
ROOM TO GROW

*HARROGATE-MALTON
*NORTHALLERTON-RICHMOND
*RIPON-SCARBOROUGH-SELBY
*SKIPTON-THIRSK-WHITBY-YORK
and surrounding countryside.

End of govt backing for BTG?

LOST in the depths of the government's expenditure forecasts this year is the death sentence on the old National Enterprise Board. The successor to both the National Enterprise Board and the National Research and Development Corporation, is to receive £10 million to maintain its existing commitments and to fund new ones in the coming year.

This compares with over £60 million invested in 1981 and an average of over £23 million a year for most of the past decade.

No figure has been mentioned for succeeding years, but last October senior BTG officials were warned that they should prepare plans to include provision for a possible complete withdrawal of government funding.

The lack of open comment from the Department of Industry, and widespread rumours in the Commons, point to this year as the last in which any government funding will reach the BTG.

But the BTG, which might expect to become a small venture

capital fund based on the sale of its existing investments, is under siege from the Treasury, which wants to take back up to two-thirds of the proceeds of any sale of investments.

Sir Frederick Wood said, somewhat optimistically, when he took over as chairman of the BTG, that he hoped the government would see the NEB off with a £100 to £200 million "dowry".

In practice, as *Computer Weekly* noted at the time, Sir Frederick looked suspiciously like the kind

of chairman who would implement rather than oppose government policy.

What will be left of the NEB and NEB operation at the end of the year, stripped of its automatic right to patent inventions from government establishments, is hard to predict.

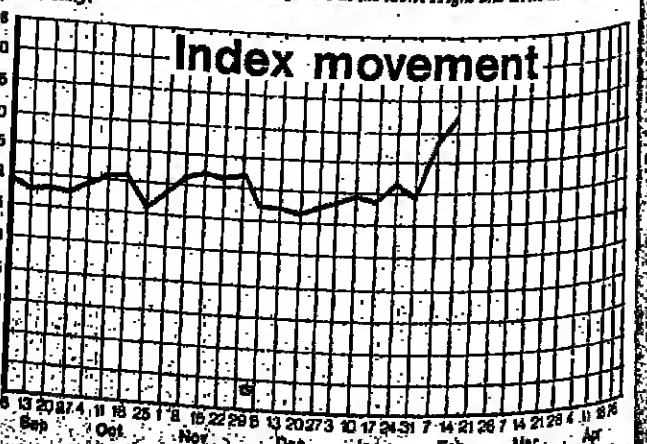
Certainly the government's left itself without a clear model handling national high tech enterprises when they have commercial casualties, as *Research* and ICL once did.

SHARES TABLE

The shares table, which is specially compiled for *Computer Weekly*, shows selected computer companies that reflect the state of the computer industry.

Date 15/2/83		Index 123.45		Date 1/2/83	
Price	London Stock Exchange	Price	US Stock	Price	US Stock
High	Low	High	Low	High	Low
188	185	43.10	42.10	40.10	39.10
185	182	42.10	41.10	39.10	38.10
182	179	41.10	40.10	38.10	37.10
179	176	40.10	39.10	37.10	36.10
176	173	39.10	38.10	36.10	35.10
173	170	38.10	37.10	35.10	34.10
170	167	37.10	36.10	34.10	33.10
167	164	36.10	35.10	33.10	32.10
164	161	35.10	34.10	32.10	31.10
161	158	34.10	33.10	31.10	30.10
158	155	33.10	32.10	30.10	29.10
155	152	32.10	31.10	29.10	28.10
152	149	31.10	30.10	28.10	27.10
149	146	30.10	29.10	27.10	26.10
146	143	29.10	28.10	26.10	25.10
143	140	28.10	27.10	25.10	24.10
140	137	27.10	26.10	24.10	23.10
137	134	26.10	25.10	23.10	22.10
134	131	25.10	24.10	22.10	21.10
131	128	24.10	23.10	21.10	20.10
128	125	23.10	22.10	20.10	19.10
125	122	22.10	21.10	19.10	18.10
122	119	21.10	20.10	18.10	17.10
119	116	20.10	19.10	17.10	16.10
116	113	19.10	18.10	16.10	15.10
113	110	18.10	17.10	15.10	14.10
110	107	17.10	16.10	14.10	13.10
107	104	16.10	15.10	13.10	12.10
104	101	15.10	14.10	12.10	11.10
101	98	14.10	13.10	11.10	10.10
98	95	13.10	12.10	10.10	9.10
95	92	12.10	11.10	9.10	8.10
92	89	11.10	10.10	8.10	7.10
89	86	10.10	9.10	7.10	6.10
86	83	9.10	8.10	6.10	5.10
83	80	8.10	7.10	5.10	4.10
80	77	7.10	6.10	4.10	3.10
77	74	6.10	5.10	3.10	2.10
74	71	5.10	4.10	2.10	1.10
71	68	4.10	3.10	1.10	0.10
68	65	3.10	2.10	0.10	0.00
65	62	2.10	1.10	0.00	0.00
62	59	1.10	0.10	0.00	0.00
59	56	0.10	0.00	0.00	0.00
56	53	0.00	0.00	0.00	0.00
53	50	0.00	0.00	0.00	0.00
50	47	0.00	0.00	0.00	0.00
47	44	0.00	0.00	0.00	0.00
44	41	0.00	0.00	0.00	0.00
41	38	0.00	0.00	0.00	0.00
38	35	0.00	0.00	0.00	0.00
35	32	0.00	0.00	0.00	0.00
32	29	0.00	0.00	0.00	0.00
29	26	0.00	0.00	0.00	0.00
26	23	0.00	0.00	0.00	0.00
23	20	0.00	0.00	0.00	0.00
20	17	0.00	0.00	0.00	0.00
17	14	0.00	0.00	0.00	0.00
14	11	0.00	0.00	0.00	0.00
11	8	0.00	0.00	0.00	0.00
8	5	0.00	0.00	0.00	0.00
5	2	0.00	0.00	0.00	0.00
2	0	0.00	0.00	0.00	0.00

The table shows the closing prices in London on Friday and in America on Thursday. The index is based on the prices of the UK companies in the table. Highs and Lows have been adjusted where necessary.



Company News is compiled by Kevin Cahill



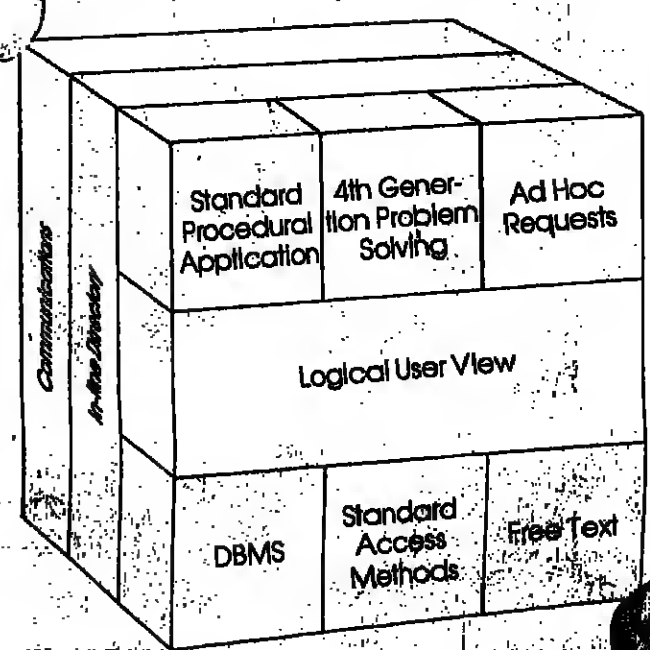
The biggest software innovation since database

TIS is a unique product developed by Cincom Systems to meet the needs of large scale IBM users demanding the complete solution to information processing.

Conceived and built to meet the specific requirements of both the professional programmer and end user - TIS is 4th generation data base technology combining relational view and relational structures with high performance.

TIS is an entirely new concept - an entirely new architecture, completely apart from any previous information handling system. One of the major innovations which sets TIS apart from any other system is its Logical User View component (LUV).

LUV gives the user a relational view of data, completely insulating user programs from the DBMS, data structures, accessing strategies or physical locations. Users no longer need to know file types or locations.



Using just four verbs, "GET", "INSERT", "UPDATE" and "DELETE", two dimensional relational views are delivered to the users.

The result is faster and simpler application development and no further need for program changes due to alterations in hardware, software or data storage.

Also by insulating user interfaces from the physical environment, LUV simplifies the use of high level facilities - TIS batch and on-line Intelligent Query, TIS 4th generation application development system, TIS

Batch Retrievals and TIS support for conventional programming.

TIS is compatible with Cincom's range of DB/DC products currently installed by over 5,000 DBMS users.

For more information, details of seminars or a demonstration please contact Jackie Duncan, Marketing Services, **Cincom Systems (UK) Ltd.**, St. Ives House, Maldenhead, Berks SL6 1QS. Telephone: (0628) 72731 Telex: 847198. Or contact our Manchester office.

Cincom Systems

Your strategic software partner.

Extracts from a speech by Warren Werblow, managing director of Scram, at a meeting of ICLcom earlier this month.

No soft options as industrial nations put up shutters

DOORS are slamming and shutters are going up throughout the world's major industrial countries as a response to prolonged economic stagnation. And it's not just the traditional heavy industries such as cars and steel that are being subjected to protectionist pressure.

It may seem strange to us in Britain, but even the American computer industry now feels itself threatened and there are increasingly strident calls for some form of protectionist retaliation aimed in the Japanese direction, but clearly also threatening other imports.

The world over, exports are good news, imports are bad news. Since our exports are other people's imports it's as well to recognise that simple fact of life and to recognise also that the protectionist climate is hardening.

As a country we haven't really made much headway in recent years in software exports. We have tended to shelter behind a reputation that says that, like Muhammad Ali, "We're the greatest," whereas, if we're really honest with ourselves, we've tended sometimes to float like the bee and sting like the butterfly.

The language of Shakespeare is the language of programming and, given that headstart, the British software industry is certainly exceedingly good and is recognised as such worldwide. But that's no grounds for complacency.

Rather, let's be self-critical. First, British software has a deserved reputation for quality, but relative to the size of the markets we really say we have capitalised on this, with exports running at £50 million and a home market of about £1 billion.

Second, it seems to me that the native British software industry — and here I'm being chauvinist as well as protectionist — is in some danger of being absorbed by outside interests. We have had some of our significant companies acquired by, dare I say it, foreigners. And we've had foreign-owned companies taking advantage of our relatively low salary structures either to tempt away our staff to software laboratories that they establish in the UK, I agree that our industry is multinational in character and that other major benefits may accrue to the nation from such activities and, further, that the software they develop is used internationally. But are the revenues so generated to be regarded as British exports?

Third, there have been some well publicised failures to get the British software industry moving in concert to tackle export markets and we shouldn't forget this. For example, about 12 years ago there was a move to bring French and British software groups together both in defence of home markets and in building stronger organisations to take on other world markets. A link was established but was relatively short-lived and unproductive.



ment to spend taxpayers' money — it had spent between £3m and £4m — and because its participants could never quite see eye-to-eye in promoting any product developed by one of their number. It was not the function of the NEB, evidently, to coax software primadonnas into working with each other.

One, probably crucial, flaw in the Insee arrangements was that Insee never directly held any shares in the participating software houses. Had it done so, there might have been the real commitment that was conspicuously missing.

So much then for some of the failings of the British software industry and some of the pitfalls and threats that face us in the big world out there. It's the old story. We're bright technically and good at developing products. But, no, we haven't marketed them to anything like the degree that we should have achieved.

From our experience in world markets over the last 22 years there are a number of lessons that we have learnt, upon which it may be possible to build.

The most basic lesson is that to succeed true commitment is required, with an awareness of the needs and customs of the local market.

There are a number of ways in which business can be grown overseas; for instance, you can set up an office and begin to trade using expatriates and/or local staff; you can buy a local company; and you can employ agents and distributors.

Government must be encouraged to create the right environment for enterprise. The Department of Industry's Invest in Britain team have been successful at attracting foreign firms into the high technology industries into the UK, and this has created new jobs. These include companies making computer hardware, video recorders and robots. But we must ensure that government pays attention to the UK-based IT industry.

And we must be aware of what our competitors are doing. For example, the French are developing the greatest plan of all for the electronics industry, La Filière Electronique. This five-year global plan calls for investment of £140 billion — equal to more than one-fifth of the total French budget. The objective is an industrial strategy for electronics in every possible field from computers, micro-chips, software, office automation, military electronics right down to telecommunications, home electronics, and cable TV.

Apparently one half of this massive investment will come from the public purse, and the remainder from private financing for which a framework has been designed — such as joint ventures between public research laboratories and private firms, preferential loans for companies developing the kind of product earmarked by the plan, public orders to selected companies, and even joint development with foreign companies of carefully selected products.

Financier's approach is plain logic at this systems house

IT is becoming more common for financial people to be found in senior positions in software and systems houses, though in the 1960s it was rare for people to shift into software from finance houses.

But Alan Thomas has already made one shift of career field, from mechanical engineer to working for ICL (Industrial and Commercial Finance Company) and, in the late Sixties, was ready to make another change when the then small Data Logic asked him to come on board.

After ten years at the helm of Data Logic, Thomas retains the financier's approach to the company in that he reckons that it has always been the most profitable UK systems house. And he takes some pride in pointing out that the company's turnover has jumped from £1 million to £26 million since it was taken over in 1976 by US giant Raytheon.

"We did take in other Raytheon subsidiaries, but it's still 40% compound growth," he said. Taking on these subsidiaries, mostly parts of electronics firm Cosser and with a couple of acquisitions on the way, has meant that Data Logic does not fit the standard pattern for UK systems houses.

Thomas said, "I think we have the ideal balance. About half our sales are products and the other half services. We have, for instance, 10% of the UK terminals market."

"This means we can support



THOMAS... "In the knowledge business people are demanding, intolerant and idiosyncratic."

what is probably the largest base of customer engineers of any systems house — we have 180. And it's the right combination for building up our skills in integrating systems." The outlook between the two sides of the business is subtly different as well, he points out. "On the products side you tend to have customers, as opposed to having clients on the software side."

"People pay money for hardware, even if it's the system that they are buying. It's much more difficult to get money for software products."

And in case anyone should think Thomas is making a virtue out of

the necessity imposed by his ownership he is categorical in the fact that the takeover by a billion a year group was agreed.

Data Logic's growth has been self-financed. That is not to say Raytheon wouldn't stump up a major project, but so far a way to a £30 million turnover in 1985, Data Logic has made self.

As for Raytheon, Thomas understands the knowledge it possesses. They know that the product is demanding, fastidious, idiosyncratic. They are the people who can scale the job.

Thomas won't own up to any outside influence claiming the general shape of time, and facetiously replying one of his main interests is making micros out of his own hair.

It's also an uncharacteristic confession that he had lost and that, under pressure from his sons, he was pressing one immediately — I wouldn't divulge the name.

He is, however, a keen fan, at least when White Light and will own up to a most passing interest in jazz.

For the future, Thomas is keeping Data Logic in large part and quoted a recent order for a million for a word processing system from top government Waterhouse as an example.

DOWNTIME

Brother robot

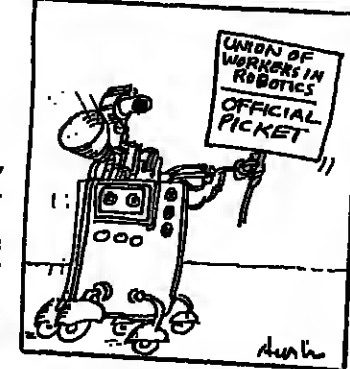
TRADE unions are traditionally opposed to new forms of technology.

But in Japan unions have more cause for concern — they are fighting for their very existence.

The increased use of robots at the Fujitsu Plant has meant a significant reduction in manpower, and a commensurate reduction in union contributions.

Union officials thought they had the problem solved when they gained agreement from the management to run a closed shop. All workers, man or machine, had to join and pay union dues. It then occurred that there was one small snag — the robots didn't actually get paid, so couldn't cough up.

Again management and union officials met, and a solution was found: the company would pay the robots the amount required of



them in union dues. All was once again well. Or it was until the Japanese government stepped in, pointing out that it was illegal for the company to pay union dues out of its own funds.

Now the union is working on another solution to this fiscal fiasco — it wants to increase the union dues paid by its remaining humans to cover the shortfall.

Who will pay? Why, Fujitsu of course: the workers' salaries will have to be increased to cover the extra cash demanded by the union.

Christmas Eve reunion

THE Police National Computer at Heaton comes to for more than its fair share of knocking, so it is refreshing to report on a case of car theft in which the victim was reunited with his missing vehicle following a licence number check via the PNC.

It was Christmas Eve, and a reveller had spent his evening, rather unwisely, ensconced in the saloon bar of the Dog and Bucket. Before he had travelled more than a few miles home in his Rover 3500, he was greeted with the sight of another Rover, painted with festive orange decorations and sporting a blue fairy light on the roof, waving him down.

"Good evening sir," said the occupant, "I wonder if you'd mind stepping out of the car for a moment and blowing into this bag."

"Sherstainly officer," replied our unwise friend, climbing out of the car and placing the breathalyser to his lips. But before he could expose the crystals to his alcohol-ridden breath, there came a squeal of brakes, followed by a sickening crunch, followed by the tinkling of glass, followed by a silence punctuated by the policeman's terse instruction: "Just wait here a minute sir, while I sort this out."

Two crumpled Cortinas had run into the back of two mangled Maxis. Seeing his chance through the alcoholic haze, our hero jumped into the Rover and raced off into the night.

Arriving home, he managed to place the car in the garage, and went to bed. An hour or so later there was a knock on the door. The man was confronted by a smiling officer of the law. "Are you the owner of the Rover, registration number 88Y?"

"Er, yes, what's the matter?" "Can you account for movements this evening?"

"Yes, I've been in bed, I feel too well actually."

"I see sir. Can anyone help you?"

"I'm afraid not, my wife's away."

"I see sir. Would you mind showing me the vehicle?"

"Of course not officer, it's in the garage."

The man led the policeman to the garage, and opened the door. Turning on the light, he said: "There you are, sir."

"How long has your car been flashing light on the road?"

"I see sir. Would you mind showing me the vehicle?"

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"Of course not officer, it's in the garage."

The man led the policeman to the garage, and opened the door. Turning on the light, he said: "There you are, sir."

"How long has your car been flashing light on the road?"

"I see sir. Would you mind showing me the vehicle?"

"Of course not officer, it's in the garage."

The man led the policeman to the garage, and opened the door. Turning on the light, he said: "There you are, sir."

"How long has your car been flashing light on the road?"

ComputerWeekly

Quadrant House, The Quadrant, Sutton, Surrey SM2 5AS

Thursday, February 17, 1983

Not much time to get IT together

OUT of business by 1990? That is the dire prognosis for the UK information technology industry if it does not soon get its act together.

Source of the prediction is the National Economic Development Office, which this week published a report from its Information Technology Sector Working Party. The working party is made up of industry, unions, and government leaders, and at least in the past has had some influence on government policy.

The report follows by a week NEDO's response to the Alvey Committee's recommendations, for a programme for advanced information technology, taken together the two NEDO documents are evidence of the growing pressure on government to put its intentions into a structured strategy.

There is no suggestion that these calls for a national policy on information technology are falling on deaf ears: the sector working party agrees that the government has been "positive and vigorous" in promoting IT.

But as Doug Eycions, director-general of the Computing Services Association said this week, "It's taking industry and government longer to respond to Alvey's recommendations than it took to produce the report in the first place." And every day that passes sees the UK's chances of keeping up with its major competitors gradually disappearing.

It is the slowness to respond to the urgent need for an information technology policy that is the basis for the working party's gloomy predictions for 1990. NEDO spreads the blame fairly evenly among government, industry, unions, and users for our failure to make more headway in international markets. But it is clear that the government is responsible for the leadership on this issue; it must provide the framework, and until that framework is established the UK's potential for success in world IT markets must only diminish.

The government is no doubt well aware of the urgency of its task.

Yet it is curious how little public debate there has been since the Alvey report came out last autumn. For some while after the report appeared there seemed almost a to be a ban on its mention in public by government ministers. Since then there have been general statements by Patrick Jenkin, John Butcher, and others saying they support the general principles of the report.

But the government's intentions are being kept close to the chest.

As the NEDO working party points out, the small and fragmented UK market is not ideally suited to compete in the high-volume, broadly-based international market; and while there have been a number of initiatives to stimulate the UK IT industry, they have been largely unco-ordinated, and have resulted in competition for limited resources and expertise.

And who are the main competitors? In the US, NEDO says, where the IT industry owes much of its success to massive government spending in military and space programmes and the Buy American Act (see page 8), the US government has spent \$10 to \$15 billion annually on computers, and government spending on software will total \$30 billion between 1980 and 1985 (compare that with the £350 million over five years recommended by Alvey). Add to that the enormous US market for its own products, and one can understand some of the difficulties the UK faces.

In Japan, NEDO points to the centrally planned policy which started in the late 1950s and now ensures that Japanese computer companies were able to supply 50% of their domestic market in 1981/82, and that market now is claimed to be the second largest in the world at \$5 billion.

Does the UK have a realistic hope against that kind of competition from the US and Japan, not to mention the French and West Germans? It might do, if we had a policy which played to our strengths.

The Chancellor will announce his Budget next month, and it may be that a national programme for information technology will feature in it.

We hope so. The growing consensus is that time is not on our side.

1984 and all that . . .

THIS week's example of the strange things people say about computers was sent in by Bruce Hughes of Glasgow, who wins £5. A computerised cleaning system for Glasgow is set to produce a new breed of super bluman.

Finance for computers

I WAS rather dismayed to read the article in First You Don't Succeed Try the ICLC (CW, January 20) on finance for the computer industry.

Dismayed, because the article completely overlooked the substantial investment activities of the BTG in this important and growing sector. While I understand that the author's brief was to look principally at private sector

sources of finance, you should be aware that virtually all of our investments have been made in partnership with many of the financial institutions referred to in the article.

MINOO RANDERIA
Director, Electronics and Information Technology Group
British Technology Investment Division

Plea to fellow sufferers

I AM sure I can't be the only Nexos 2200 user who has been extremely frustrated by the way in which Close Up in ICL's 4.2 Wordsoft software generates unwanted blank lines and even blank pages.

In the old 3.2 (which I've been driven back to) the cursor, on Close Up, ran ahead of the next return symbol and tidied up any spare lines left over from a deletion or insertion. Now it closes only to the return symbol, leaving spare lines which have to be individually deleted, and in the event one has closed up the last paragraph of a document in order to bring a

widow forward from its final page, the system now insists on printing that page even if there is nothing on it but the number and/or title — a terrible waste of time and paper.

May I appeal to other Nexos users who are suffering the same sort of frustration to get in touch with me? Perhaps if we send a joint letter to the ICL software people we may get the superior version of Close Up restored.

JOHN BRUNNER
Director

Brunner Fact and Fiction
The Square House
Palmer Street
South Petherton, Somerset

ICL gives choice of supplier

IN your article, ICL Gives Users Choice of Supplier (CW, January 13) you correctly report that Memorex is now a licensed supplier of ICL brand media.

But the article gives the incorrect impression that Memorex disc packs failed ICL technical evaluation at Kidsgrove.

Let me assure you this was not the case. Memorex disc packs are excluded from the agreement with ICL, not because of any failure on technical grounds but because of

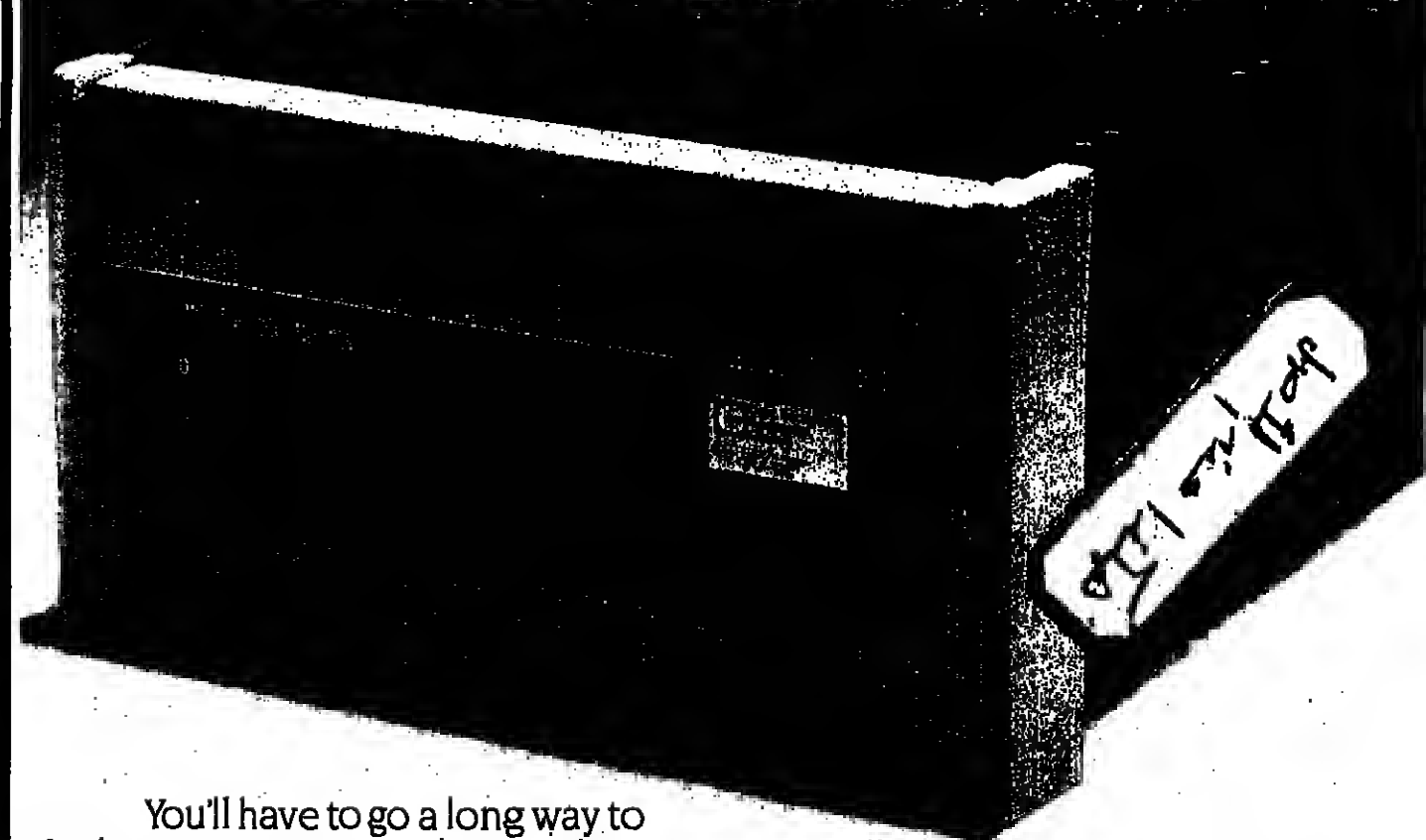
existing commercial agreements between ICL and Control Data Corporation.

EDWARD B. PICKEN
Director, Media

Memorex
Staines, Middlesex.

Although it was not our intention to imply that the Memorex discs failed the ICL approval tests, Memorex did submit samples for testing and did not receive approval to market them under the ICL name. — Editor

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Plus fixed discs providing a fixed capacity of 16, 48 or 80 Mbytes.

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controllers, offering ease of system integration and flexibility in systems design.

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Liveware File

by Don



Warren Werblow

Jobs directory poses a threat to the agencies

AN alternative source of contract programmers and analysts is now running successfully alongside the agencies that have dominated the market since the early Seventies. NCCD, National Computer Contract Directory, launched in November 1982 by Willoway, has 60 subscribing companies including big names like ICI and Barclays Bank as well as software groups.

The directory now lists nearly 3,000 contractors and has found work for at least 25, including 11 for the Middle East and four for Holland. The total would sustain a medium-sized agency, and more contracts are expected soon, since many of the subscribing companies have yet to use it.

It costs companies £380 to subscribe to NCCD, for which they receive the directory itself and monthly updates. The directory gives a brief curriculum vitae of each contractor, and states whether the person is operating as a limited company.

NCCD advertises for contractors just as the agencies do, except that specific job requirements are not mentioned. Contractors fill in NCCD's Atlas computer system and added to the directory as soon as possible.

Already about half the estimated UK total of 6,000 contractors have signed on. Contract operators are not included in the directory.

When a company has a contract

requirement, it phones NCCD, which will do a search on its computer for likely candidates. If the requirement is too broad, like asking for an IBM Cobot person, NCCD will suggest tightening the requirement, explains manager David Coffey. By the same token, if the requirement is so stringent that the search elicits not a single candidate, then Coffey will suggest relaxing the specification.

When a suitable list of candidates has been agreed, NCCD will phone or write to them that day giving details of the company. The matched candidates then contact the subscribing company, which can flip through the directory to the relevant entry. Interviews can quickly follow.

NCCD has already hit back at the agencies which argued that it would fail because it would involve subscribing companies in too much work, or because it would lack the human touch. NCCD does help companies get their requirements right, and it more or less guarantees that contractors will approach them; although, as one subscriber told me, there is some risk-riff on the directory, a result of the contractor having nothing to lose by being listed.

NCCD does not arrange the interview, or negotiate pay. So a company must decide if the cost of doing this itself is met from the saving made by cutting out the agency fee.

One company that shall be nameless has taken a Cobot woman on contract through NCCD, and thinks the saving just worthwhile. "It took 13 or 14 phone calls and a week or ten days," says a spokesman, "much quicker than going through an agency."

"But I expected to pay a little less," he adds. The agreed weekly wage was £450 as opposed to the £390 or so the company expected to pay. Clearly the contractors are determined to take their slice of the agency fee saved.

Computer Automation took on a

technical author from NCCD to write the user documentation for a data dictionary and data entry package. The trouble with technical writers, explains Alan Colvin, of CA, is that they are often failed programmers hoping for a cushy job. "We really needed a good technical writer."

There were two choices: either go to one of the companies like Interurope that specialises in technical documentation, or get a contractor. The trouble with the specialist companies is the great expense, says Colvin, although the quality of their work is excellent. So he approached Coffey at NCCD.

"David came back next day with a name," says Colvin. "We interviewed, and gave him the job."

The work took a month for a fixed charge of £1,000, compared with about £3,000 quoted by the specialist companies.

"NCCD produced the right person very quickly," says Colvin. "But I knew what I wanted."

The lucky contractor was Lester Arthur Stone. "That was one of the best jobs I've had," he enthused. Stone sees an advantage in NCCD in that you talk about the job first and then negotiate the wage directly.

The agencies might deny it, but they are pretty scared by NCCD. Coffey says that several smaller agencies have molested their way into the directory by posing as contractors, and he showed me an example.

"I can tell those moles," he says. "The experience stated is always good, and suspiciously round numbers are given in the box for months of experience."

Contractors who find work through NCCD can expect to earn more than their agency shillings, and to give them an idea of how much daily bread to seek, Coffey initiated a pay survey. A skeleton of the results is given below.



COFFEY... Unearthed agency moles on his contractors' directory.

Do-it-yourself contract staff earn 15% more

	Prog	Anal	Sys	Consultants
LONDON & SE:				
Through agency	£350	£400	£465	£500
Direct negotiation	£455	£412	£550	£525
ELSEWHERE				
Through agency	£375	£375	£427	£430
Direct negotiation	£425	£450	£525	£515

These figures are based on questionnaires returned from 196 contractors. Each figure is a median which divides the group into two equal halves, one half earning less than the median, the other half more. For each of two areas, the figures are given for each job category and for the median for the whole group. The figures for the whole group are given for each job category and for the median for the whole group.

ONE of the most comprehensive surveys of contractors' pay has just been completed by NCCD, the National Computer Contract Directory. The idea is to give subscribing companies an idea of how much to pay contract programmers and analysts according to the area and job category.

There are 796 contractors included in the survey. Clearly some of the figures are distorted by individual extremes, but one trend is inescapable: contractors who negotiate directly earn far more than their colleagues paid by agencies. On average it is about 15% more.

Companies have to bear this in mind when calculating savings made by negotiating directly with contractors through NCCD. Agencies typically charge 35% more than they pay the contractor, so the company can expect to save about 20% of what the contractor would earn from the agency.



Beware of these five bug types

THE diversity of program bug types would have delighted Charles Darwin, but mostly they fall into five categories: Infinite loops, variables unset, variables overwritten, off-by-one errors, and boundary conditions.

These categories often overlap. For example, a piece of code might be executed every time a certain variable fails to exceed a given value. If the variable is never set, this code will be continually executed.

Off-by-one errors are not hard to spot. Usually they simply involve executing a loop of code once too often, or not often enough. There is no excuse for unset variables.

The difficult ones are overwritten variables and boundary condition errors, because they occur only with certain data values, and might only be brought to justice after many successful executions of the program.

Boundary condition errors occur only at extreme values, such as when a loop of code normally executed many times is completely by-passed.

As for overwritten variables, a harrowing example was recently given to me from a Fortran program. It concerned the ENCODE statement for reformulating data during execution, only found as a de luxe feature in non-standard versions of the language such as Control Data and Harris provide.

The purpose of ENCODE is to move data around and chop it up so that it can be used in different ways. Its effect can be pernicious indeed as one poor programmer discovered at the cost of two weeks' distraction.

The unlucky man found that one of his sub-programs was overwriting some data variables, yet there was not a single statement that seemed responsible for the action.

In the end, it proved to be an ENCODE statement. Too many hits of central memory had been reserved for the action, and these had all been reset to zero even though this erased other variables not listed in the statement.

Moral: Beware of de luxe features of languages.



"Perhaps the last system to process accounts in £d."

£sd a museum piece

by John Riley

PERRHAPS the last computer application still processing business accounts in good old-fashioned £sd can be found in the Museum of London.

The late 18th Century trading ledgers of the Whitefriars Glassworks are being entered on to a database, a copy of which will end up with the Museums Documentation Association.

Computerisation of these 18th Century records has shown up a few mistakes in the aura. "We sometimes find that the figures are out by the odd farthing," said a member of the project.

Wendy Evans, co-ordinator of the project said, "The ledgers provide an extraordinarily detailed account of the glass trade. Some 65% of the customers can be identified and most have their addresses, which helps us to build up a picture of the social history of the period."

All the records are being transferred to the Museums Documentation Association's database system called Gos, so that the information can be accessed by other museums or researchers.

The MDA aims to ensure compatibility of the structure of computerised databases through the museum services in Britain.

Workplace is compiled by Philip Hunter

PEOPLE



Kamp

Martin Peacock has joined Confederation Life Insurance as manager. He will oversee the installation of the company's new IBM 4341 DLPS computer, which is being brought in to replace the existing Hewlett-Packard. He is a Fellow of the IDPM.

Andahl (UK) has appointed Steve Coggins (below) as general manager of the company's operations in the Benelux countries. He joined the company in 1977 as a consultant systems engineer. He then became marketing manager and later support manager for the Northern European marketing region.



Chris Toone

Chris Toone (above) has been appointed director of systems development and consulting for Geis-co's Northern European region. He was previously managing director of AGB Computer Services, and before that was a director with ICL.

Colin Williams has been appointed production manager at Data Type's new factory in Cwmbran, South Wales. He was formerly in a similar job with Aiwa.

Vice-chairman for CDC co-operative

PRESIDENT of Control Data's Peripheral Products company has been elected vice-chairman of CDC's business and technology co-operative ventures. Thomas Kamp will be responsible for the direction and co-ordination of co-operative business ventures, and for the implementation of programs that deal with technology exchange.

Kamp was instrumental in the formation of Magnetic Peripherals

and Computer Peripherals, two of Control Data's largest joint ventures.

He joined the company in 1957. He became a vice-president in 1965 and president of the Peripheral Products company in 1973. In 1977 he was elected to the company's board of directors.

Kamp will be succeeded as president of the Peripheral Products company by Gordon Brown, who joined CDC in 1967.

Howard Kornstein has been appointed European director of technical support for Digital Research. He joins the company from Intel where he was technical support manager. Also joining Digital Research is Frank Iveson, who has been appointed director of Northern European operations. He was previously sales manager with Cambridge Interactive Systems.

Central Television has appointed Tony Salmon as head of information services responsible for all of Central's requirements in computing, information technology and communications technology. He was formerly with ATV as a member of its development group.

Bnh Jannison has been appointed regional sales manager for South and West England at MDS Computer Systems. He was a sales manager at ICL for seven years before joining MDS.

Kath Steplen has been appointed to augment the technical sales support team at Pete and Pam Computers in Lancashire. She joins the company from the Compu-graphic division of Gestetner, where she was in communications sales support.



Computer software firm Tridato Mikros has appointed six new members of staff. Left to right are: Bob Smith, technical writer; Russell Cheahley, systems analyst; Mike Gault, programmer; Ray Heppell, sales and marketing manager; Jim Whitehead, programmer; and Terry Evans, who joins the customer support team.

DIARY

FEBRUARY 21

Planning for a disaster. BCS Glasgow branch. Music Room, Staff Club, University of Strathclyde, John Street, Glasgow. 7.00.

The biological computer. BCS Merseyside branch. Department of Electrical Engineering, Liverpool University, Brownlow Hill. 6.00.

FEBRUARY 23

Royal Institution Lecture by P. Coot of Barclays Bank. BSC Humberside branch. University of Hull. 7.30.

FEBRUARY 24

Artificial Intelligence. BCS

pool University, Brownlow Hill. 6.00.

FEBRUARY 27-28

Meeting. BCS Primary Care group. Royal College of General Practitioners. Details from Dr Mike Sheldon on (0602) 700111.

MANAGER development courses tailored to the needs of the computer industry are being run by Actionline (Business Consultants). The courses aim to equip managers with the knowledge,

skill and attitudes necessary to achieve specific goals and targets, covering motivation, delegation, leadership and team-building, project management and problem solving. They are normally run in-house. Further details from Actionline, Englefield Estate Office, Englefield Road, Theale, Reading. Tel: (0734) 303404.

How to make your micro work like a mainframe.

First, neatly cut out the "370" label. Now, when nobody's looking, nonchalantly tape it to your terminal, just under the "IBM" as if it really belonged there. Then wait for your chance and quickly slip a dBASE II™ disk into your main drive. That's it. Your IBM Personal Computer is now ready to run a relational database system, the kind that IBM has on their mainframes. And you're ready with more data handling power than you would have dreamt possible before dBASE II.

You'll wonder how you managed without it.

You'll find that dBASE II, because it's a relational database management system (RDBMS), starts where file handling programs leave off. dBASE II handles multiple databases and simplifies everything from accounting to department staffing to monitoring rainfall on the Upper Volta.

With a word or two, you CREATE databases, APPEND new data instantly, UPDATE, MODIFY, and REPLACE fields, records and entire databases. Organize months worth of data in minutes with the built-in REPORT To-wait-field and multi-field searches, then DISPLAY some or all of the data for any condition you want to apply.

And you've just begun to tap the power of dBASE II.

Easy to look at, easy to use.

Input screens and output forms couldn't be easier—just "paint" your format on the screen



and what you see is what you'll get.

You can do automatic calculations on fields, records and databases, accurately to 10 digits.

And you can use dBASE II interactively for answers right now. Or save your instructions, then repeat everything with two words: DO Menhours, DO Project X, DO whatever has to be done.

Use dBASE II to help make your choices.

Instead of just poring over a manual, you can check out dBASE II by running it on your own system free for 30 days.

Visit your dealer and run through a hands-on demonstration. Then buy dBASE II and use it on your IBM PC, Sirius or CP/M computer.

If you don't like it, return it and you'll get your money back, no questions asked.

But if you do that, you'll have to remove that label. Because nothing short of a mainframe works like dBASE II.

For the name of your nearest dealer, contact one of our distributors: Encotel Systems

01-686 9687, Ferrari Software 01-751 5791, Interam 01-675 5325, Pete & Pam (0906) 229011.



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Sound & graphics module (Type II)	6.95
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Control Pad XVII	19.95
Control Pad XVIII	20.95
Control Pad XIX	21.95
Control Pad XX	22.95

Elite Computers Ltd, 100 High Street, London E1 1AA. Tel: (01) 252 1212.

Recursion is so simple

RECURSION is the key to several emerging computer languages, including Prolog, which is gaining favour for applications of artificial intelligence.

No technical programmer is worth his carrots without it. But what is it?

As often, an example saves column space. Suppose we want a

PUZZLER

THIS week we have a "kaleidoscope" division sum from across the channel. Can you fill in the missing figures? Your page 53 is confound.

QUI? TROUVE (CECI

Teachers and pupils are the losers in the Scots schools battle

Jennifer Boswell discusses the latest report about the Scottish Microelectronics Development Programme

THE £1 million scheme to equip Scottish schools with microcomputers has come under fire in an independent evaluation published recently.

The Scottish Microelectronics Development Programme (SMDP), which was launched at the same time as the Microelectronics Education Programme for the rest of the UK, has run over half of its intended life-span. An earlier report painted a gloomy picture of the lack of success of the programme, and researchers Phil Odon and Professor Noel Entwistle, both of Edinburgh University, fill in the details in their new assessment.

After SMDP's first nine months, Odon warned its steering committee of "disquieting features" emerging in its 68 project centres. Teachers were disenfranchised at the lack of support they had received and there was a "widespread sense of isolation", he reported.

HM Chief Inspector Ian Morris claimed that the criticisms "had been taken on board", but the new report not only confirms the early warnings, but goes further. Bad management, poor communications and the total lack of a coherent strategy — all are documented in remorseless detail.

Extensive evidence was gathered during in-depth interviews and a 107-item questionnaire. The only problems which are shown to have been dealt with are the lack of printers and appropriate insurance cover which existed formerly.

A total of 106 teachers in SMDP's 68 project schools and colleges are the supposed beneficiaries of government spending which averages around £10,000 per project teacher. They are unimpressed with the programme's performance. Table 1 shows their assessment of SMDP's performance on four of its aims.

The responses show strong agreement on the importance of these tasks. Yet the proportion

who thought SMDP's progress could be rated "reasonable" or better on any of them is very low.

Only on the general awareness aim did the total of teachers saying "reasonable", "good" or "very good" manage to outnumber those who were unable or unwilling to respond. On other aims (not reproduced here) the numbers of satisfied teachers sank even lower, in three cases below 10%.

As postal questionnaires go, this one achieved a high response rate (80%) and was sent only to teachers directly involved in SMDP. Its results therefore deserve to be taken seriously. They present an extraordinarily damning picture.

The project teachers' rating of "support received from SMDP" in the shape of visits, advice by phone or post and the software

have invariably been to take away programs, never to give help.

"The most crucial issue would seem to be exchange of information — will SMDP become much more successful in this? Surely it must..." "Increase the number of programmers... I begin to doubt if there are such people." The evaluators are in no doubt about where the responsibility for the programme's failure lies. From the outset, the Scottish Education Department adopted and maintained a heavy-handed role. The report documents "how determined was the SED to retain control over the management of SMDP".

Its main avenue of control was the steering committee, chaired by Morris and packed with other civil servants. At no stage were representatives of teachers' organisations

"The evaluators are in no doubt about where responsibility for the programme's failure lies. From the outset, the Scottish Education Department maintained a heavy-handed role. The report documents "how determined was the SED to retain control over the management of SMDP"

library are equally negative. Between 16% and 38% said that they had had no help in these various ways, another 20% to 28% said "not required" or "not applicable", and between 20% and 31% made no response.

The remainder were quite critical of such "support". The technicians' visits, telephoned advice, information service and seminars/conferences were rated "fair" or "very good". These low ratings were amplified by spontaneous comments: "We have supported SMDP rather than the reverse"; "The programmers' visits

to or of the SMDP project staff given a single place or even observer status.

Even if they had been, they might have been frustrated by the way in which this committee was run. The importance of the non-SED members of the steering committee is openly voiced in the report: "We seem to be steering a different programme each time we meet," complained one; another objected to bawling to "rubber-stamp" decisions taken by SED.

The proliferation of tasks imposed by the steering committee caused SMDP staff to work "under considerable pressure".

"Strong ministerial interest" and "constantly changing priorities" cannot have helped clear thinking.

According to the report, "the heavy demands made on the staff have also created an atmosphere of crisis management. The director has found it difficult to develop a coherent policy for the use of his manpower... He has had to leave the development of policy to the steering committee... that has generally meant the acceptance of SED plans. Thus the work of SMDP has continued to be very firmly controlled by SED."

The report attributes some of the problems to the low value placed on educational development in relation to computer expertise. The first deputy director left the programme in 1982, and the evaluators note that "there is no-one in the current SMDP staff with a strong background in educational technology". Her departure seems itself to have been

symbolic of the controversy over the management and direction of the programme and the role of SED as puppet-master. A formal protest by the chairman of SCRT followed and a member of the steering committee resigned.

The evaluators are careful, here and elsewhere, to explain the constraints and to avoid allocating blame. Indeed, their candid analysis of failure and its causes cannot have been an enviable task for researchers who were commissioned by SED and whose research projects depend to some extent on government funding. In many ways this is a very brave piece of research in the face of what must have been considerable pressure to whitewash.

The section entitled "The achievements of SMDP" conveys the flavour of the report. One of the five sub-headings is the software library and information service. The software collection has disappointed teachers by its slow growth. Only 27 "supported" programs had been produced by June 1982, of which some were utilities and others produced elsewhere before SMDP. Little of the "unpublished" library material "would be immediately usable as it lacks appropriate documentation".

The information service "has been swamped with telephonic and postal requests with which it cannot cope... SMDP has been widely criticised in the regions for its failure to make satisfactory responses, or indeed on occasions any response, to the queries."

The authors are at pains to explain that SMDP staff are not qualified to deal with many of the queries received, and that more resources are needed for the software library.

Nevertheless, there is little in this or any other section to justify the breathtaking new sequel.

"This brief summary of SMDP activities provides clear evidence of substantial progress towards objectives originally identified. Standing in marked contrast with the preceding 52 pages, the release sounds as if destined for a first release."

SMDP spends only taxpayer's money. Scottish Office Education Minister Alex Fletcher, who has identified himself closely with the programme ever since he officially opened it commented: "The evaluation presented a balanced, frank and detailed picture. Under-terred, director David Walker attacked its credibility, and claimed that it dwells on historical incidents in fact only two pages out of 67 deal with events prior to 1978."

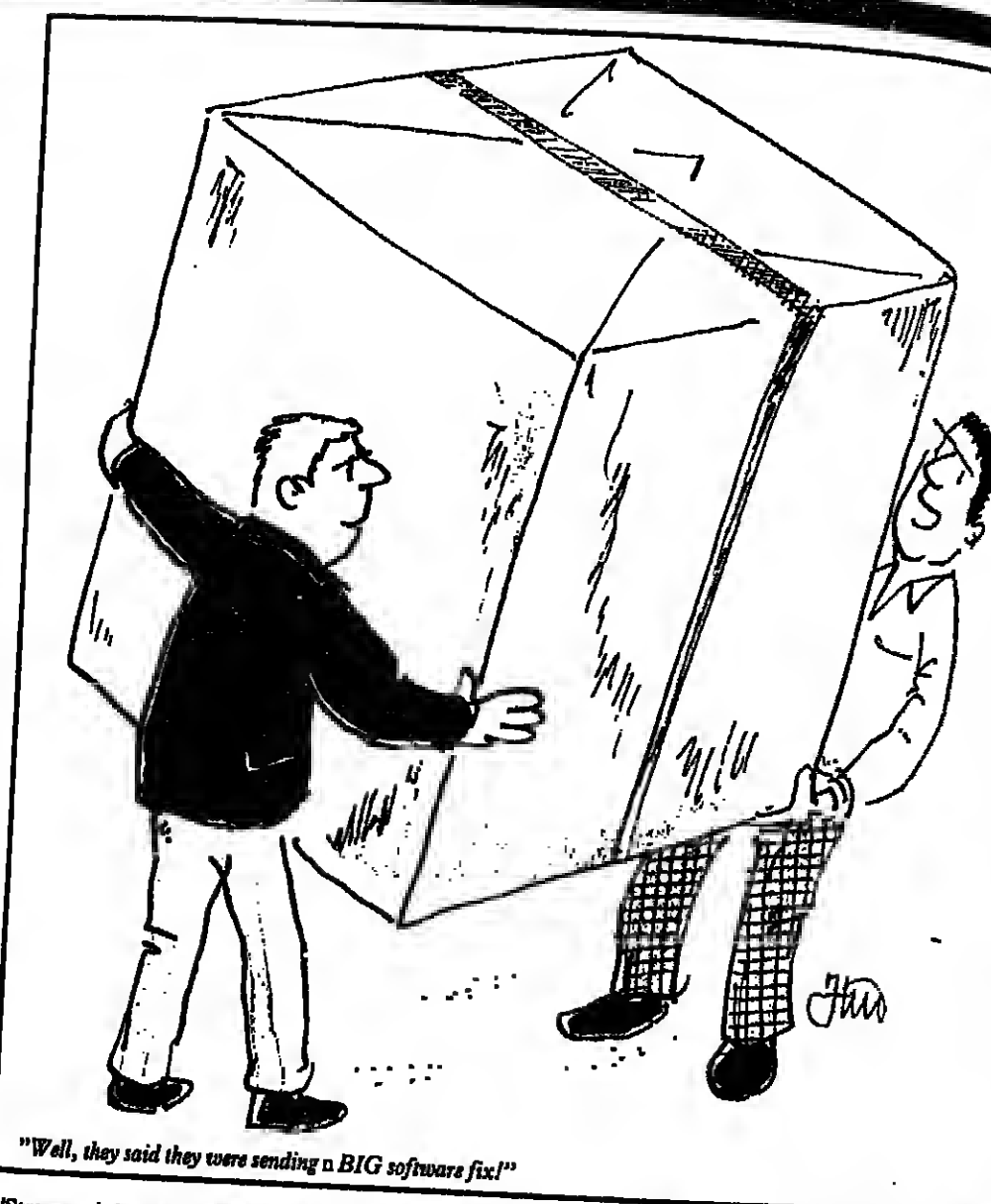
Eight days before the report was published the government announced how the future would develop. SMDP's life is to be prolonged indefinitely beyond 1984, the Department of Industry is to provide £75,000 for a six-month crash programme to develop software for schools (presumably to help fill the yawning gaps in the SMDP software library), and almost incredibly the Norwegian Education Ministry is to send an official to SMDP's Glasgow offices for a year with a view to adapting the SMDP model to Norway.

What is the Norwegian for "Yes, Minister"?

"The Introduction of Microelectronics in Scottish Education" by Phil Odon and Noel Entwistle, Department of Education, Edinburgh University. Published December 1982 by Scottish Academic Press, Edinburgh.

	General awareness	Software/Information	Teacher education	Curriculum materials	Dissemination
IMPORTANCE					
Very important	85	81	80	75	71
Important	8	9	5	13	17
Useful	0	1	3	1	1
Not useful	0	0	0	0	0
Unsure/No Response	8	8	12	10	10
PERFORMANCE					
Very good or good	17	8	8	7	5
Reasonable	27	28	19	17	24
Slow or poor	21	29	18	22	19
Unsure or no response	35	43	56	54	53

Table 1: Ratings of SMDP's aims and performance by 106 project teachers.



Computing takes a cue from the world of theatre

Hedley Voysey on the role of the actor in programming

SCRIPTWRITERS produce scripts which are given to actors who enact roles based on them. This well-known state of affairs has provided a flow of ideas for advanced computing technology workers to base plans on. And it all started in the specialist world of artificial intelligence.

For in systems which tackle problems of "understanding", whether it relates to speech or vision, or even just to the selection of useful data out of excess data, there are many tasks which need to be specified in case they have to be done, but which are called on to "play a role" only when affairs in the stream of events call for them to go on stage.

The use of a model, or a view, of the pieces that make up a complex system is growing at a great rate — simply because the complexity of systems thought to be within our grasp is growing.

This is not a new phenomenon, but the explicitness of models and views is something new — the earlier models were largely implicitly taken on board by the computing community.

For instance, every programming language carries an implicit view of what is really important to the systems at which it is aimed. Cobol, for example, sees file updating as the essential theme, while other languages clearly see the events to be dealt with in a more general and abstract context.

In truth, the artificial intelligence students borrowed, maybe unconsciously, the terminology of scripts, actors and roles, from the area of management science and operations research. Certainly, as long ago as 1960, students of interactions between industries, attempting to forecast economic growth and decline, were applying these stylized conventions to disciplines of how they viewed the goals and options available to economists.

One of the earliest uses of this terminology in computing systems applied to the evolution of military real time systems as they attempted to cope with partial failures of the system while still doing some useful (and correct) work.

This is the problem that is often labelled as graceful, versus ungraceful, degradation. In these studies the actors were assumed to be using telephones to communicate and, as failures happened, these could be represented by being able to make only outgoing calls, or being able to take only incoming calls, not all of which could be taken as based on truthful views of what was happening outside.

This turned out to be a handy way of establishing a strategy for coping with failure and uncertainty generally.

It is especially the ability of scripts to express uncertainty which makes this stylized convention useful in both office automation studies and robotics studies as applied to industrial automation. But there is also a more general reason for using these conventions which fixes quite simply on the fact that when a system is aiming at doing a number of tasks in parallel, instead of purely sequentially, the scripting approach gives quite a reasonable approximation for expressing the desired behaviour of the system.

This need to express the behaviour of systems exploiting parallel computation is a deeply felt need.

The fact that a dozen or more programming languages are capable of sustaining concurrent computation is not much use if we cannot secure a connection between the desired behaviour of systems programmed in such languages.

There is an obvious, but somewhat misleading, connection with the highly parallel design of data driven, or dataflow machines, and with the actor, role and script conventions. This exists because the principle used in data driven architectures is that a computation happens when the operands it needs turn up. The results are then sent off to wake up some other process.

The reactive nature of some of these designs intended for the fifth generation (so-called) seems the most ideal match for the role enacted as the script demands it. The match between parallel computation and the script conventions is rather broader than the pure ideas of dataflow.

It is an essential part of an actor



HOARE... Drifting away from programming languages.

that you cannot look inside it, and what is known about it rests on the types of messages it accepts and the kinds of responses it makes. There is no synchronisation of actors, for they just act when a message turns up. The fact that all objects in such a formal system are actors means that the messages themselves are actors.

Generally speaking, the list of actors acquainted with any one actor is limited, which helps to partition the design of the system so that what is asynchronous cannot produce rubbish results, which is one of the larger design problems in parallel machines.

The behaviour of actors is strictly specified by the script and between being called upon their existence is controlled by their memory. All executing and communicating objects are actors in this formal structure of such a system which arose out of work at the Massachusetts Institute of Technology in artificial intelligence.

The point about the MIT model was that it was intended to be a formal model of computing, not to work as a programming system.

One of the results of experimental work at IBM's Yorktown Heights Research Laboratory is to show how the actor model can be used as a programming system, using PL/I as a programming language.

The IBM version of the actor system moves away from strictly everything being an actor to the restriction that objects implementing an application are actors.

The idea is that users can directly program the actors working in an application, and so the actors are "large" in comparison

with the original intentions of the MIT approach.

This neatly illustrates the almost horrendous spread of concerns about parallelism, because for studies of very high powered and tightly linked bunches of processors, the program elements must function at a minutely described level.

On the other hand, for devising many practical systems for both the office and the factory, the degree of asynchronous working effects rather large scale functions, these being related to a local work centre control, either of document flow, or of an assignment within a manufacturing schedule.

In this latter type of actor programming, the way that synchronisation is controlled among basically asynchronous pieces of program is a basic design step in the transfer of a modelling approach into a full blown programming system.

The IBM office system researchers tackled synchronisation at three levels. The first simply marks some actors as "serial" so putting the work they have to do in a queue. This makes sure that things are done in order.

The second level is controlled by a client actor which keeps track of multiple activities spun off from its needs and makes sure that all these loose ends are neatly tied up before any message is sent on as an indication of the need being satisfied.

The third level seems to use slightly confusing terminology in that "activities" achieve synchronisation.

This third level of controlling parallelism allows the creation of what appear to be hierarchies of clients, but it also allows the creation of alternatives in activities so that the winning activity can cancel the losing activity.

There is also the ability to view an activity as a parent which subsumes the creation of children. All of these sub-activities have to be completed before its main task can result in a message transmission.

Without going into excessive detail, the sweep of the IBM experimental use of the actor conventions can still be seen as very useful for both office automation and factory automation systems building.

The system used in this way, as a complete programming system, is inherently distributed and it is almost the reverse of the classic database approach where a raft of passive data structures lies around for operation on by control structures which may fit the application in mind rather poorly — frequent cause of failure in conventionally designed distributed systems.

The whole approach forces the problem of an application to be placed together as a collection of actors, whose interfaces must be well defined, but whose most notable characteristic is their tendency to be active.

In one of the studies developed by IBM the "windows" of a multiple sectioned terminal screen are all active at any one time. This is a strong contrast to the Xerox Palo Alto Centre's work in Smalltalk where there are multiple windows but a focus, at any one moment, on only one active window.

The IBM approach enables windows to initiate office applications, manipulate images belonging to the applications and scroll over the images, simply in response to user commands. The



Something completely different? There is an obvious connection between parallel design of dataflow machines and theatrical conventions.

whole exercise was aimed at taking the System for Business Automation project headed by Moshe Zloof into a screen executed form distributed over many desks.

By borrowing Carl Hewitt from MIT, who developed the Omega network system for knowledge engineering, the IBM staff were able to implement this system and use it to provide a relational access method to support the general shape of Zloof's work — which is best known from the original Query-by-Example method, now established as an IBM product.

The essential point that has been seized by the IBM research staff in experimenting with the "actor" formal notations and pushing them into a working system via a subset of PL/I, is that distributed programs have to be concurrent ones.

However, most of the concurrent programming languages show that they are excessively influenced by the expected shapes of the architecture that they are to run on. In Britain, the Innos based development of the Occam language seems to follow in this stream, although there seems nothing to stop it implementing "actor" type ideas.

The IBM staff have started at the opposite end by fixing on a description process which helps to focus on the expected behaviour of the system.

The great British contribution to parallel computing, is naturally Hoare's Communicating Sequential Processes, which like Carl Hewitt's "actors" drifts away from programming languages and heads in the direction of modelling the process of computing.

However, the modelling of some general system is viewed by Tony Hoare's method as essentially one where synchronisation is part of the modelling act itself. For an evolving office or factory system this seems to suppose that the job of co-ordinating the computing can be envisaged before many of the pieces of computation have been described in behavioural terms.

To say the least, this seems unlikely. To date the buzzword "distributed" has mostly been applied to data, rather than to any processing of data, signals or text. Simply to save confusion it might be best if parallel and distributed processing became labelled as "co-ordinated computing" systems.

However, despite buzzword proliferation, or perhaps because of it, we shall need to find more ways of describing the behaviour of genuinely distributed processing, and also to find implementation and programming methods at least as good as the ones advocated by the team involved in the System for Business Automation project led by the redoubtable Zloof.

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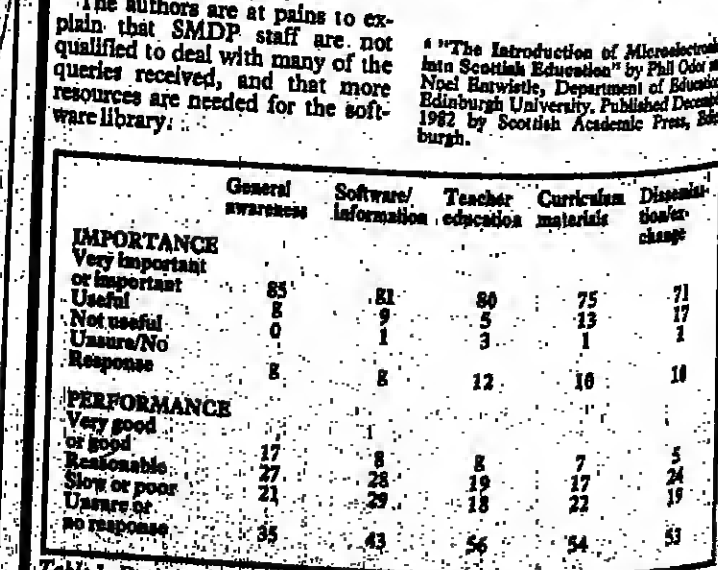
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Practical Computing



The distribution of essential skills among professional computer staff is changing . . . Don Hazel reports

Computer job skills growing faster than the technology itself

IN the beginning of business computing there were no operators, programmers, analysts or hardware/software specialists — only computer people. They were all things, and because of scale, were able to keep abreast of all aspects of the subject.

Today they are able to keep abreast of some, but not all, of the facets of their chosen career — a situation common to many professions.

The days are long gone when all things were in one head. An oversimplification of the statement of the present situation might be: "All computer people need to know something about everything

— some need to know everything about something."

With rapid computer systems development has come a confusion about defining functional responsibility and who should shoulder it. Executives who have concern for cost effectiveness and, hence, prosperity of business tend to question the proliferation of computer staff. They need to be made aware of the growing specialisation in the modern computer department.

The skills needed to provide an effective computer service expand at a rate determined by the growth rate of the use of technology. This is faster than the growth of the

technology itself.

The halcyon days of a single program computer processor with single peripheral input and a single output device have quickly made way for multiple configurations with every conceivable facility and access availability. The skills required of the people has grown accordingly and this must be recognised by those inside and outside the profession.

In modern business fundamental computer knowledge is required by management if it is to take full advantage of modern technology. This minimum level is essential if management is to initiate business innovation and com-

municate its needs to those responsible for detailed computer activity.

This "fundamental knowledge" required is probably confined to an understanding of simple computers, stored program techniques, input and output devices and secondary storage methods. Some

will have the ability to create simple programs in one of the high level languages available for elementary applications, eg. Basic. The following definitions are not exhaustive, but refer to skills that must be present in professional computer staff to provide an effective service.

The skills identified as necessary to create efficient programs written in a high level language for complex business applications include the ability to write programs which will be complementary to the modern-day business situation, reflect the way in which workers perform their jobs (eg online order processing, transaction processing), make use of dialogue computer language; communications facilities on- and off-line storage as appropriate; complex peripherals, and take due cognisance of backup, full back, restart facilities, and of general security requirements.

Although there is much common technology shared by the manufacturers, the semantics vary, making each appear to be providing his own particular brand. This will lead to a further level of specialisation where experience of a particular manufacturer's products predominates.

The requirement is for knowledge of equipment components and interfaces, firmware, operating systems and data communication systems.

Also desirable is a knowledge of compatibility for a pertinent mix of business systems, assessment of interworking between mixed manufacturer hardware and software, and low level language programming.

As for systems analysis, the important skills required to perform this function have been evaluated by Dr Robert Alloway of the Massachusetts Institute of Technology. He ranks them in the following order:

- 1) Strong user orientation, delivering systems users like.
- 2) Ability to work with ill-defined objectives and resolve conflict productively.
- 3) Skills in organisational design and assessing system impacts on user departments.
- 4) Behavioural sensitivity to impacts of systems on individuals (planning and control).
- 5) Project management skills (company goals and operations, senior management orientation).
- 6) Broad view of company goals and operations, senior management orientation.
- 7) In-depth knowledge of user departments' operations.
- 8) Dedication, hard work, hustle.
- 9) Implementation planning, education, motivation and training of users.
- 10) Leadership ability, administrative experience, political sensitivity.
- 11) Ability to work intimately with senior user managers.
- 12) Estimating and rigid adherence to project costs and schedules.

Where advanced computer applications form a significant part of the system, the skills required include a thorough understanding of all its proposed features and the ability to prototype from proposals, as well as the ability to produce accurate models, systems

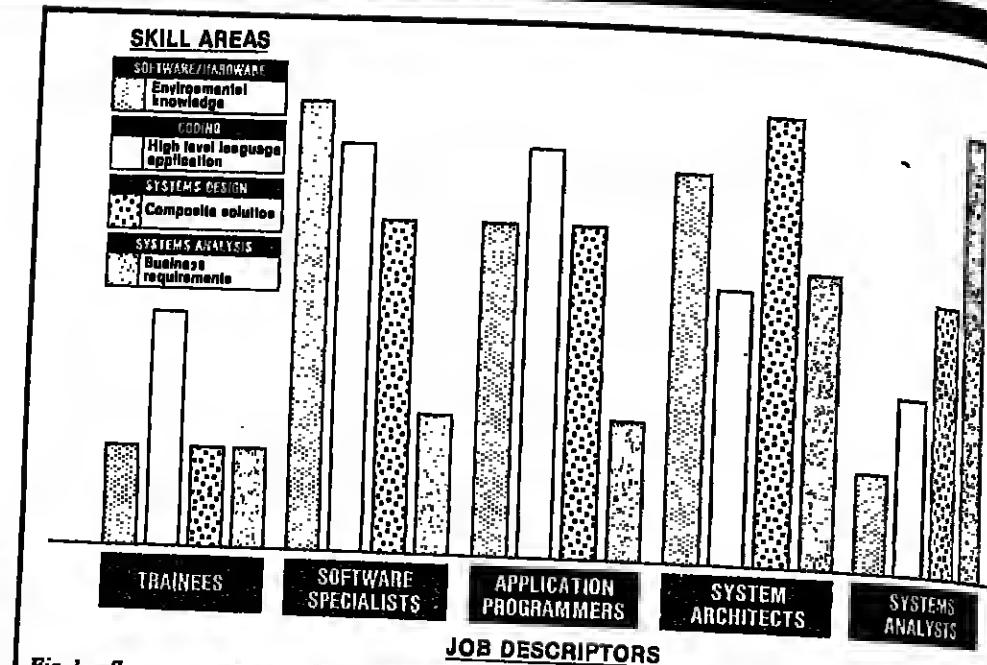


Fig 1 reflects a comparative skill expectation for a range of computer people found typically in the system development area of the management services function.

simulation techniques.

The ability to communicate detailed specifications to user management should not be underestimated, in addition to the ability to produce specifications for the work of coding staff and other specialists.

Computer staff require a thorough understanding of many aspects of the system they are to develop. The histogram (Fig 1) indicates a comparative skill expectation for a range of computer people found typically in the system development area of the management services function. (Figures in titles have been used so that there is no confusion with existing nomenclatures. They have been used, however, to reflect the individuals' main occupational skills.)

There has long been confusion in the definition of the professional nature of the duties of each, for example, with systems analysts and systems architects. However, as in Fig 1 the predominant skill requirements are significantly diverse as to make any confusion in their employment quite likely. However, most systems analysts would claim to be both analyst and architect. Certainly this should not be the case in organisations employing modern techniques.

For additional clarification, the "trainee" has been included in Fig 1. The Littlewoods Organisation has been used as an example, since it has a formal training scheme requiring the new entrant to carry out programming duties.

Following 20 weeks of training the trainee is required to get a grounding in applications programming for about two years. After this time he is expected to specialise in specific disciplines.

An appropriate job description highlighting the mix and relevant skill levels required for a systems analyst might include a specialist in-depth knowledge of systems analysis techniques, a thorough understanding of systems design techniques, previous experience of commercial standards in high level language coding practices, and a working knowledge of software hardware environment skills.

An improvement in productivity, morale and, hence, cost effectiveness could result if a reappraisal of the job specification, and of the individuals filling jobs, were initiated.

In the past, there have been definite tendencies to further exacerbate the situation by confining market availability (or scarcity) of technical skills and management ability, in order to follow practices probably more suited to other functions of parent organisations.

Many readers will be aware of the evaluation routines being applied universally to large organisations. While computer staff remain in short supply and their utilisation is strongly identified with the very survival of business, their definition should be clearly defined as simply and as effectively as possible.

Don Hazel is senior principal consultant at PricewaterhouseCoopers.

DATABASE FOR MICROS

Relational database is difficult to implement on micros, despite software vendors' claims, argues Phil Manchester

A way out of problems of file handling on a micro

ONE of the first things that strikes a mainframe or mini programmer moving "down" to microcomputers is the parlous state of the file handling software.

As most micros are programmed in the Basic language, itself never designed for handling files of data, it is no surprise that facilities are to say the least, primitive.

But times are changing and a number of companies are offering file handling packages appropriate to commercial use, and some are even more ambitious in offering database management software.

In most cases, it is perhaps an overstatement to call these packages database management products, but they do offer a way out of the problems inherent in file handling on a micro.

The range of products on offer currently would seem to meet every possible need for micro users. At the top end there are products like dBase II, developed by the US software company Ashton Tate. Selling for about £450 through various UK agents, the package is billed as a relational database management system.

This is an example of the type of overstatement of which micro software builders are very fond. Certainly, the package does offer some of the techniques, but it is stretching the concept of relational database a bit too far to call the product "relational".

By way of contrast, IBM's System R has been in the experimental stage for some years, and IBM is still not satisfied with its performance on a giant mainframe to offer it as a product.

Do not be deceived by the marketing statements of software companies — relational database is extremely difficult to implement in its entirety.

Despite this, dBase II has gained a reasonable reputation among its users, although the general opinion suggests it is not a system for the inexperienced.

The same can be said for FMS 80, a product in the same price range (£640). Again developed by a US company, FMS 80 offers the same sort of range of facilities one would expect with packages for larger machines. Running under CP/M, the system also offers facilities for working under a menu selection and editing regime.

Here again, the system is recommended for experienced computer users rather than novices.

Still in the upper end of the market is another "relational" product called Condor. Developed by Condor Computer Corp, the product is sold in the UK by MOM Systems of Gravesend.

Prices start at £195 for the basic file handling system rising to £650 for the full system including multiple file handling, a report writer and indexing.

Again the system runs under CP/M on 8-bit machines with a 16-bit version for the IBM Personal Computer about to be launched.

Moving down the range, CompuSoft's DMS comes in two forms — a version specially built for the Pet and another which is CP/M compatible. There is a marked difference in price with the CP/M version of the product costing £400 and the Pet version less than half.

It is, however, a UK developed product.

DMS and most other products at this price range operate only on a single file which makes them more properly file management

systems rather than true database systems. FMS 80, for example, will allow simultaneous processing of up to 19 files and Condor and dBase II will take two files a piece.

At the lower end prices top at around £150. This is about the lowest you would pay for a reasonable product despite the fact that in the US you can get a "database manager" for as little as \$25.

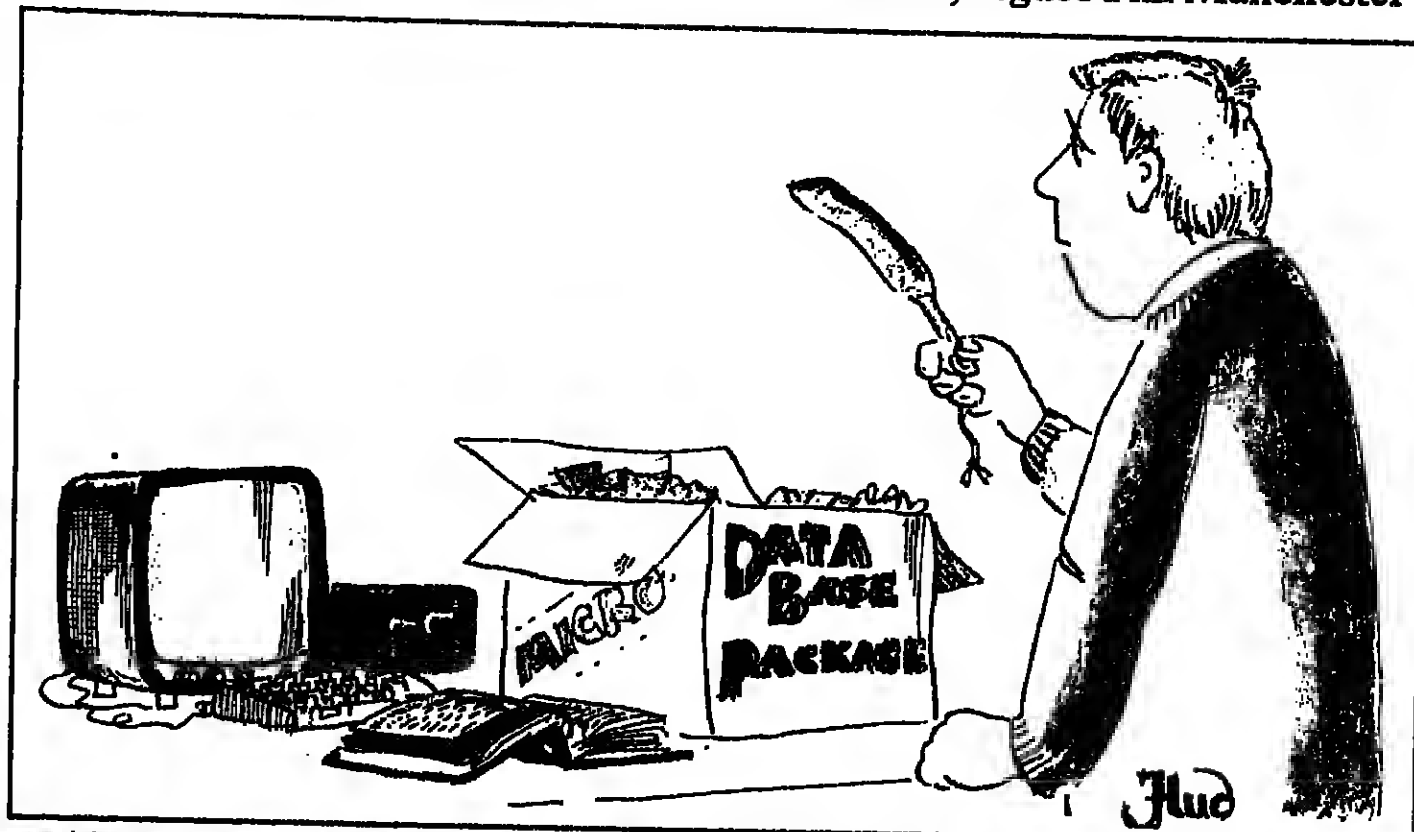
Two UK products fall in the £150 range with Microtrend's Trendisk marginally cheaper than Caxton's Cardbox at £55. To promote sales of the latter, Caxton has started to distribute a read only version for nothing.

Both of these systems offer facilities to handle free text. In other words they can be interfaced to a word processing system and indexes may be built up for free text files. This is the type of facility that should prove very useful to microcomputer users wishing to use their machines for a variety of tasks embracing word processing and general business systems.

Both systems run under CP/M. All of these systems will require around 48K RAM or more (the Pet version of DMS will run on a 32K machine) and will probably require substantial disc storage to hold the software. DMS uses 280K of disc storage to hold the software. DMS uses 280K of disc, according to the developer, while some of the larger systems require even more.

It does depend largely on who is going to be using the system which product best meets the need.

Cardbox and Microtrend, for example, are aimed very much at the novice user rather than the programming aficionado. But this means that they are limited in their



natural language interface. If it were that good, you would not need a manual in the first place!

In the end the measure of a good database package is the quality of its various interfaces — the interface between the package and the user, between the package and programs and for the sake of efficiency between the package and the physical file system.

As well as control languages for manipulating the database utilities, the package should offer good quality facilities for specifying the structure of the database. Where structured data is to be used — that is, in most business applications — a straightforward method of specifying fields and file content is essential.

In larger database systems, a technique called the data dictionary is employed. This enables the user to specify detailed information about fields and files (and sometimes even programs). More important, it allows changes to be made without affecting the data itself. In other words, if you make a change to a couple of fields in your database, it should not be necessary to re-enter the data in the new format; the package

level software on micros as once applied to larger machines. For a database management package to be of use, it must be able to perform. The only way of testing this is to try it out.

Another important aspect of all database packages is their ability to recover from disasters. There is nothing more frustrating than spending a day entering data into a file and then have it crash. On larger machine systems, sophisticated recovery options have been developed to get round this sort of problem. On micros it is probably even more critical. Large machines have been struggling for years to get database right on bigger machines. They have succeeded in getting some of the simpler aspects of database management to work

reliable than the low cost floppies found on micros.

Cardbox, for example, is claimed to be able to recover from even the most traumatic systems crashes with specially built "salvage" routines. This is a feature which does not appear to be available with some of the more expensive packages.

In conclusion, it should be remembered by any prospective purchaser of a database package that it is no easy ride. Professional programmers and systems analysts have been struggling for years to get database right on bigger machines. They have succeeded in getting some of the simpler aspects of database management to work

but the more ambitious concepts of an integrated centralised database of all the data required for a company's systems have yet to be realised. For straightforward applications — say a general purpose customer file — such packages can be a real boon. They take a lot of the heartache out of file management. Even here, however, the person charged with implementing such a system will need to know a fair amount about data design and programming to make a success of it.

The golden rule as always with software packages, is to give the software a jolly good work out and insist on getting your hands on it before signing on the dotted line.

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THE R0206 and R0208 are an extension to Rodime's successful R0200 series, and like the remainder of the series they use open loop stepper motor technology. By a series of innovative measures Rodime has extended this to capacities and access times which previously required the use of the more complex and expensive servo-on-track voice coil technology.

The drives give the benefit of high capacity, fast access time and the simplicity and reliability of open loop technology, says Rodime. They are distributed in the UK by Independent Computer Engineering.

The R0206 provides 31.5 Mbytes and R0208 42 Mbytes of storage when formatted in the floppy disc mode at 256 bytes per sector and 32 sectors per track.

They are identical in mechanical format, electrical interface and power supply requirements with the remainder of the R0200 series.

Due to further refinements in their mechanical construction, the R0206 and R0208 can offer a wider environmental operating range. Rodime's use of microprocessor

control with further improvements on the existing stepper motor switching and damping system, enables the 206 and 208 to achieve an access time of 50 milliseconds over 640 cylinders.

These drives also incorporate other features of the R0200 series such as two chamber construction, thermal compensation and special airflow.

The R0206 and 208 are dimensionally compatible with the majority of 5¼-inch floppy disc drives, measuring 8 inches by 5.57 by 3.25 inches.

The rotary head positioner, which minimises head yaw so improving head flying stability, is driven by a rotary stepper motor controlled by a digital ramp-up, ramp-down velocity profile. In addition, a velocity sensor is used to provide feedback for improvement in hard settling time. The linkage is a band mechanism in a sealed filtered compartment which is maintained at the same temperature as the head/disc enclosure.

Independent Computer Engineering (CW), 16/18 Littleton Road, Abford, Middlesex. Tel: (07842) 47271/47171.

Protecting floppy discs against fire and theft

VITAL computer records are protected from fire damage by four new storage cabinets introduced by E A Rosengrens of Göteborg, Sweden.

The new cabinets, designated DC-10, DC-20, DC-40 and DC-60, cater for all forms of computer records, in installations from minicomputers through to mainframes. Interior fittings, all of which can be easily adjusted without tools, range from tape racks for tape reels and cartridges, hanging bars for tape reels, door holders for reels, seals and cartridges, extending and fixed shelves for disc-packs, and lockable compartments for secret data. There are also wire baskets for 5¼-inch or eight inch floppy discs.

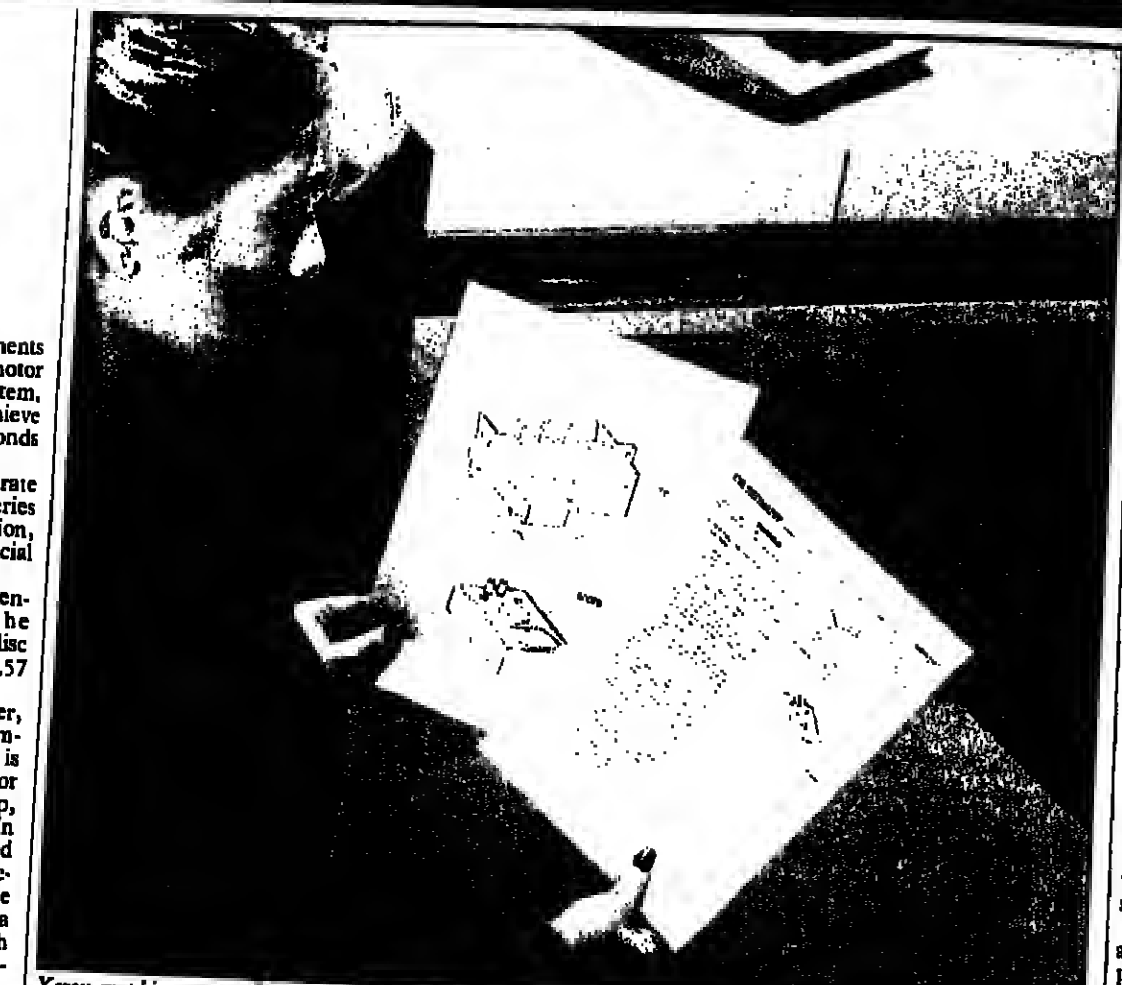
Cabinet design combines fire resistance with protection against

physical damage - sufficient to withstand dropping several storeys and prevention of unauthorised access or theft.

Rosengrens Security Services (CW), Livingstone House, Carteret Street, London SW1H 9DR. Tel: 01-222 4426.



DC-10 cabinet after testing.



Xerox graphics system allows scanned line art and photographs or computer generated graphics to be merged with text for direct printing on the Xerox 8700 or 9700.

Xerox bid to transform publishing

THE publishing industry will be totally transformed with the increased use of electronic publishing systems, believes Rank Xerox, which has announced a new graphics system and two electronic printing systems.

Don Wilson, managing director of Rank Xerox (UK), said that with electronic publishing "all the manual intensive processes of the conventional technical publications production method are eliminated".

The graphics system comprises

a Xerox 150 moderate speed scanner which merges scanned line art work and photographs with text, and a graphics handling option and associated software. The graphics and text can then be printed on a high speed Xerox 9700 or the newly announced 8700 electronic printing systems.

The 8700, also announced last week, is a medium speed printing system controlled by its own processor and operating system software, with two 25 Mbyte fixed disc drives. It prints up to 70 pages

a minute with a print resolution of 90,000 dots to the square inch.

The third system is the Xerox 2700 distributed electronic printing system, claimed by the company to be the first directly supported, non captive laser printer in the European DP market. It is compact, occupying one square metre of floor space, and prints at 12 pages per minute.

Rank Xerox (CW), Bridge House, Oxford Road, Uxbridge UB8 1HS, Middx. Tel: Uxbridge 51133.

Security system is programmable

A FULLY programmable security system, designed to offer alarm monitoring, CCTV surveillance, and access control for up to 3,000 card holders, has been launched by Cardkey Systems of Reading.

Called the D-1500, the system has been developed for the small to medium business, and allows controlled entry/exit privileges to

any designated room, area or location. At the same time, the system will also monitor alarms for potential hazards or emergency situations like burglary, smoke, and fire.

The Cardkey D-1500 consists of a central controller - a visual display terminal for use at entry or

exit points. A CCTV system and an optional printer are available.

When an alarm is activated, an audible warning sounds at the console. The screen then displays the alarm source.

Cardkey Systems (CW), 23 Stadium Way, Reading, Berks RG3 6ER. Tel: (0734) 415211.

Graphics tablet for HP micros

A NEW graphics tablet is available from Rapid Recall which is graphics to be created very easily on Hewlett-Packard Series 1 microcomputer systems. As the 9111A, the device will sketch, maps, schematic diagrams, etc, to be drawn on a tablet and simultaneously input to the computer as a series of digitised xy co-ordinates for processing on a display screen or plotter.

The 9111A has a sensitive drawing area of 218.5 by 303.2 with 16 soft menu keys and a lightweight stylus with tactile feedback. The soft menu keys are located across the top of the tablet.

Each key will transmit a number of the menu key to the computer when the stylus is pressed on it and the system software can use this input in the same way as a keyboard key when a menu is displayed on screen.

Two modes of operation are available on the 9111A, point-to-point or continuous sample. In the single point mode a digitised coordinate is output to the host computer each time the stylus is pressed on the active surface. In the continuous sample mode the tablet can be set to output a position at a rate between one to 60 times a second.

Rapid Recall (CW), 1st House, Denmark Street, W1 Wycombe, Bucks. Tel: 0494 26271.

Visionhire in Sony deal

UNDER a new agreement between Visionhire Communications and Sony (UK), Visionhire have become a major distributor for Sony range of business video terminals.

Visionhire has already taken delivery of a large consignment of Sony KTX 9000 nine-inch colour terminals.

It includes an alphanumeric keyboard, 14 page memory, 16 page rapid access and facilities for offline editing with tape recording and automatic "carousel" of screen pages.

Visionhire Communications, Videotex Division (CW), Visionhire House, Station Way, Crawley, West Sussex.

PRODUCTS

Aughton offers industrial robot range for hire

IN WHAT is believed to be a new development in the instrument hire business, Aughton Microsystems of Kirby is offering on hire a range of robots and automated work cells designed for industry and research.

Manufactured by Systems Control of Thornaby, Cleveland, the equipment available comprises the Smart-Arms range of robots and Smart-Cell unit work cells.

Smart-Arms robots are supplied in three sizes, with reaches and lifts ranging from 450mm and 1kg to 1000mm and 1.5kg. Designed for continuous duty, each unit has six articulations: Rotate, shoulder, arm, hand, wrist and position-controlled gripper (where electro-servo systems are used).

The robots are available with a variety of gripper systems. The industrial units are normally supplied with an electric gripper with the rod effector configured as hand-wrist gripper but which can be easily changed by the user to hand-yaw gripper. Pneumatic grippers, in any configuration, can be fitted to the industrial range. Research robots are usually equipped with the gripper in the wrist-hand gripper arrangement.

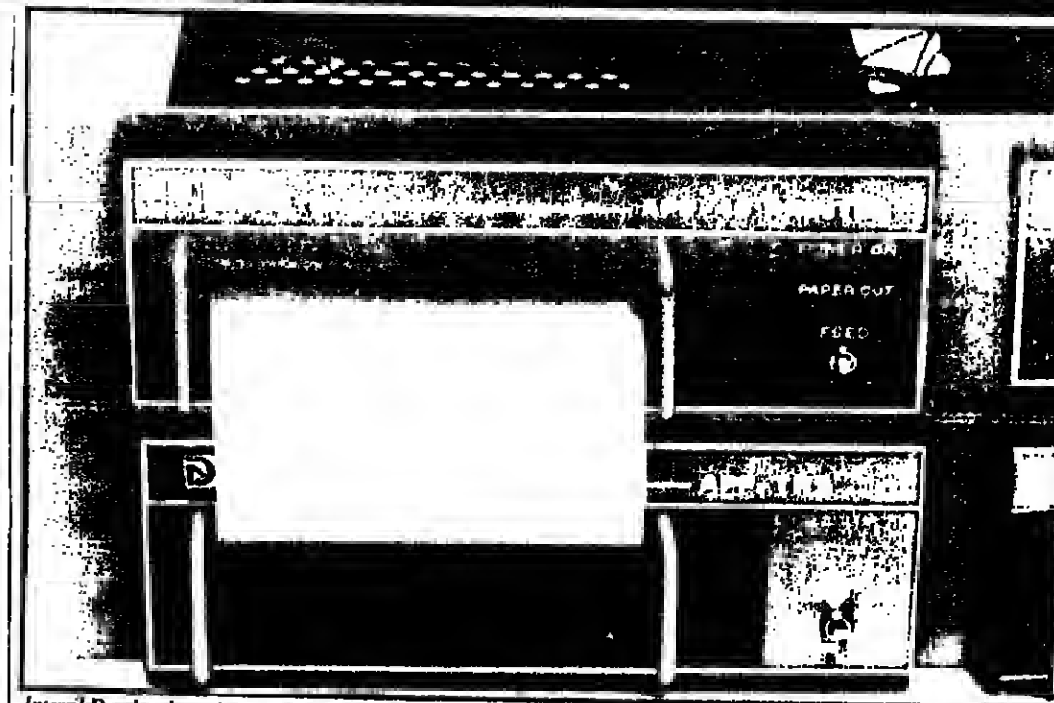
Smart-Arms industrial and research robots (Types I and R) are computer controlled. The industrial version has the computer built into the electronics cabinet whereas the research robot's computer is separate to facilitate access to software.

The software supplied with Smart-Arms enables the user to program the robot to perform a wide range of tasks which can interact with external processes. The movements are programmed by means of the Smart-Arms control keyboard or computer keyboard.

The Smart-Cell is an automated work cell capable of standing alone as a production or research unit or it can be linked to other machines by means of a supervisory computer.

A Smart-Cell 8T system comprises a Smart-Arms 61/600 robot rigidly linked to a two-axis work table, an interface electronic control unit and an Acorn Atom single board computer with operating software held in ROM and display monitor.

Aughton Microsystems (CW), Woodward Road, Kirby Lanes, Kirby, Liverpool L33 7UZ. Tel: (051) 548 6060.



Intersil Data's take-up/rewind accessory for miniature panel-mount printers.

Accessories for Intersil printers

INTERSIL Data has added three new printout take-up/rewind devices to its line of thermal printer accessories.

These devices, the APP-TR1, APP-TR2 and APP-TR3 have been designed to be used with the company's DDPQ7, APP20 and APP48 panel mounting thermal printers respectively. Each accessory mounts on a single hinge allowing the user easy access to the paper which has been taken up.

Paper is drawn into the unit by a slotted take-up shaft and there is no need for reels or any other type of device for spooling the paper. The new accessories have been designed so that paper which has been taken up may easily be pulled back for viewing without tearing.

After viewing the printout will automatically be drawn back into the unit.

Operating temperature range of all three devices is 0-50°C. All src +12VDC powered, draw 750mA (max), 9W (max) and have a paper handling capacity of 150 feet or a 2.5 inch diameter roll.

The APP-TR1 accepts paper up to 1.75 inches wide, the APP-TR2 accepts paper up to 2.31 inches wide and the APP-TR3 accepts paper up to five inches wide.

Intersil Data UK (CW), Soamprogett House, Basing View, Basingstoke, Hants. Tel: (0256) 57361.

Monitor protects against early failure

LOST data and garbled information in microprocessor and computer-based equipment are the most obvious signs of mains disturbances. An effective and easy-to-use method of detecting and recording mains disturbances is now provided by the TM-240 mains monitor, a small, lightweight and inexpensive indicator, available from Rhopoint.

Even when damage and data loss effects are not obvious, continued attack by transient noise waveforms can cause cumulative damage to circuits and lead to early failure.

Applications for the TM-240 are many and varied, due to its simple, LED disturbance indication and its straightforward connection across the equipment to be monitored.

The unit can be left unattended to record the disturbance ampli-

tude over a specified time. Used simultaneously throughout a building or factory, a number of TM-240s will provide a profile of the disturbance amplitude at different locations, as well as providing profiles of these disturbances against time.

Prior to installing new equipment, the TM-240 can be employed to analyse the condition of the power outlet which will be used, to determine if corrective action is required. Once the new equipment is installed, the monitor will indicate if any new disturbances are present on the mains supply.

If mains protection equipment is fitted, then the TM-240 will be useful in monitoring its performance.

The TM-240 has a response time of less than half-microsecond.



TM-240 mains monitor.

Rhopoint (CW), Eastmoor House, 98-102 Station Road, East, Oxford, Surrey RH8 0AY. Tel: (08833) 7988.

Intergraph puts more memory into workstations

GRAPHICS display manufacturer Intergraph has improved response speeds and included new facilities in its latest raster workstations by putting more processing and memory in the terminals.

The new monochrome DSP041 and colour DSP042 have three processors to carry out functions normally left to a host computer.

They also have 824K of memory, which means a terminal can hold entire designs. Different views can be retrieved and displayed, again without reference to the host.

New functions built into the terminals include panning over the entire design at any speed, three-dimensional rotation and zooming in on specific areas, all through simple commands.

Both terminals have 19-inch screens which can display eight views of the design. The screens have a resolution of 1,280 picture elements by 1,024.

The DSP042 has 4,096 colours and can display 256 of them at a time.

Intergraph (CW), Alblow House, Oxford Street, Newbury, Berks RG13 1JG. Tel: (0635) 49044.

BT to set up fraud fighting service

CREDIT card frauds now running at £20 million a year could be cut dramatically with the help of British Telecom's Cardcheck service, due to start in June.

The service will complement a more expensive equivalent launched last year, in which telephones with built-in magnetic card readers are costing about £400 each are linked by telephone directly to the credit card companies' computers.

In the Cardcheck service, simpler telephones will be used to key credit card numbers, expiry dates and transaction amounts into a British Telecom voice response computer at the Cardcheck centre. The computer will forward the details to the appropriate credit card company via BT's Packet Switch Stream data network and translate the reply into a digitally-stored voice message for the retailer.

The lower cost of the Cardcheck telephone will make the service economical for a wider range of retailers who make less frequent contact with credit card companies, says BT.

British Telecom (CW), 2-12 Gresham Street, London EC2V 7AG. Tel: 01-357 3814.

HP 3.5 inch discs in UK

HEWLETT-PACKARD'S 3.5-inch microfloppy disc systems are now available from the UK firm Rapid Recall. The drives are compatible with Hewlett-Packard's Series 80 personal computers.

They use drives from the Japanese manufacturer Sony but Hewlett-Packard makes the control electronics and packaging.

The discs come in a cover with a sliding section which covers the read/write gap to protect it from dirt. This feature is said to be unique.

A new monitoring system keeps track of disc use and advises the user when a disc should be replaced because of its age.

Rapid Recall (CW), Rapid House, Denmark Street, High Wycombe, Bucks. Tel: (0494) 26271.

Low-cost graphics for detailed design work

THE Genisco G1000 is a low-cost, high resolution, interactive raster graphics system, based on the Z-8001 microprocessor. It has been designed for applications such as CAD/CAM, plot previewing, electrical engineering, scientific data analysis, mapping and circuit board design which require precise detail. It costs about £7,000.

Being based on the Z-8001 microprocessor makes it plug-compatible with the Tektronix 4041-DVST, allowing it to be up and running on existing software. It is user-programmable offering up to 16K words of EPROM as well as 16K RAM.

The G1000 uses raster scan technology which has the advantage of selective erase of any portion of the graphics or alphanumeric image. High contrast, and brightness,

using a black and white screen permits clear viewing in normal light. The terminal gives long product life and continuous viewing can be achieved without damaging the CRT phosphor. The high performance 60Hz refresh ensures flicker free viewing.

Resolution of the G1000 is 1024 x 792 x 1 bit. It has a detachable keyboard with typewriter-style alphanumeric keys, special function keys, a 12-key numeric pad and cursor controls for interactive capability.

The G1000 has a standard asynchronous, serial, full duplex interface that is RS232 compatible.

R & H Systems (CW), Oxford House, Oxford Street, Wellingborough, Northants NN8 4HG. Tel: (0933) 227477.

MARKET PLACE

WANTED IBM/CL REDUNDANT/OLDSIDE COMPUTERS
Raybold Computer Services, Unit 12 West Station Industrial Estate, Split Road, Woking, Surrey. Tel: Woking (0421) 54888.

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Permanent Micro Systems Ltd, 100 Kingsway Road, London N2 0ND. Tel: 01-447 222.

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SUPPLY OF DATA NETWORK EQUIPMENT
The Constabulary is investigating changes to its current data network. Proposals are invited from firms capable of supplying full X.25 PBN equipment up to level 3. The equipment required will consist of packet switches, gateways, P.A.D.s for asynchronous terminals and modems for the H.D.L.C. line using British Telecom leased circuits.
Full details of the required network, including necessary operating characteristics, will be forwarded to suppliers upon application. Responses by the 25th February, 1983.
Replies to: Chief Constable
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Ventguard's acoustic cover.

Acoustic covers cut the noise

A RANGE of acoustic covers for word processors has been introduced by Ventguard, which specialises in noise control. These covers are designed to a high specification with great emphasis being paid to the aesthetic appearance, says Ventguard. The comprehensive range ensures that an economic cost is incurred relative to the appropriate printer. For volume orders, a colour range is available, with individual requirements incorporated.

The product should fit well in any office or domestic situation, says Ventguard.

Ventguard (CW), Unit 12, Highview Avenue, Keyworth, Nottinghamshire NG12 5BL. Tel: (0607) 5856.

Managing international operations

THE SCS commercial and financial management system from Shortlands Computer Services incorporates facilities for multi-currency transactions within a wide range of software packages.

The packages, which are fully integrated and upgradeable in easy stages include general ledger and budgetary control with report writing facilities; cost ledger; purchase ledger; sales ledger; payroll; labour costing; stock and purchase orders control; customer order processing; works order processing and work in progress.

The system, which runs on the Unix-operated Zilog 8000 family of microcomputers is felt to be a forerunner in its field, and will be useful for firms which operate internationally, says Shortlands.

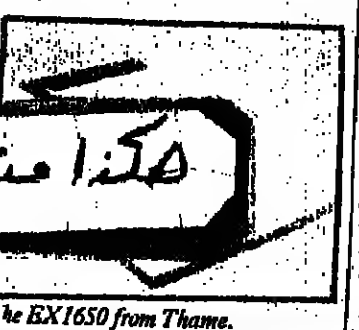
Shortlands Computer Services (CW), Shortlands, London W6 8BT. Tel: 01-741 0130.

Hard copy from video

THAME Systems has introduced the EX1650, supplied by Axdom Corporation for the US.

The printer enables full size hard copy output directly from any video input including video display units, graphics terminals, monitors or even TV sets with high quality 3000 dot resolution. Any displayed data, including complex graphics, alphanumeric data in any size or font, foreign symbols, or even hieroglyphics are quickly reproduced on the printer.

Thame Systems (CW), Thame Park Industrial Estate, Thame, Oxfordshire OX9 3RS. Tel: (084 421) 5471.



The EX1650 from Thame.

Users can add CAD to business system

COUNTING House Computer Systems has announced a major release of its Integrated Business System IBS.

The IBS release, combined with the company's existing CAD/CAM system ITS, establishes Counting House as a single-source supplier of both CAD/CAM and business systems running under a single computer operating system and aimed directly at the mechanical engineering market.

IBS, like Counting House's Integrated Technical System ITS, runs on Prime computers under the Prime operating system. An ITS user with an entry level Prime 2250, for example, can now run drafting, NC machine tape preparation and business systems on the same computer, with up to seven workstations sited in production and administrative departments. Similarly a user starting with IBS alone can add CAD/CAM facilities to his existing system.

IBS is a modular, interactive, online system. The modules in its

two basic application suites, financial accounting and materials control, cover a wide range of functions required by a mechanical engineering company. These include not only sales, purchase and nominal ledgers, management accounting and payroll, but also purchase and sale order processing systems; stock control; bill of materials; and job costing. Further modules, such as process planning and job progressing, are now under development and will be announced shortly.

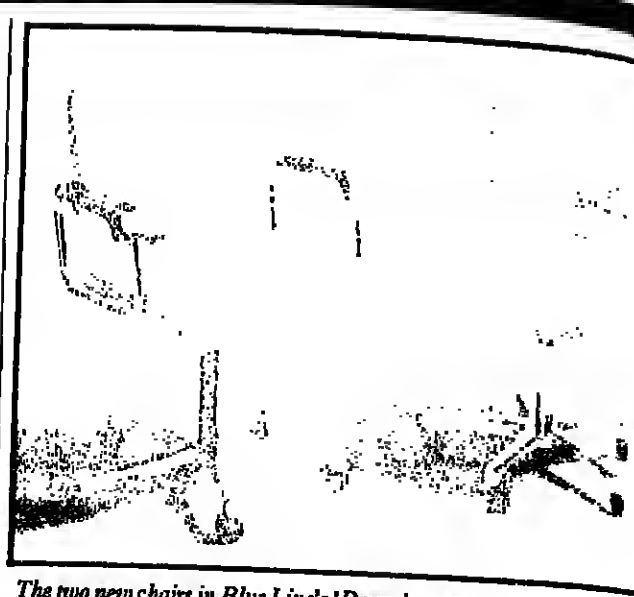
Other features of IBS include a powerful security system, which restricts access to important data and processing activities to authorised users; and audit trails, which allow transactions to be traced back to original documents when required. Important changes to information on file are also noted for audit. The system continually monitors all processing so that, in the event of a power or hardware failure, recovery can be made with minimal loss of data.

IBS is available as a turnkey system complete with all necessary hardware and software: no software only, to run on an existing Prime computer; or on a time-sharing basis via dial-up lines to Counting House's bureau facility at its Bury St Edmunds headquarters.

Counting House's Integrated Technical System, ITS, gives mechanical engineers an integrated system that takes them from component design through drafting to manufacture, with a recently added option for three dimensional modelling.

It provides a common geometric database which interfaces the output of Counting House's GDS system for mechanical engineering drafting to the GNC Graphical Numerical Control system. ITS also runs on Prime's fully compatible range of microcomputers.

Counting House Computer Systems (CW), Farnham House, Farnham St Martin, Bury St Edmunds, Suffolk. Tel: (0284) 68921.



The two new chairs in Blue Line's 'Demos' range.

Demos gives the support you need

TWO chairs have been added to the Demos range from Blue Line Office Seating to give computer operators or typists the kind of comfort and support they need when inputting material for data or word processing. As well as height adjustment for the seat, the chair-back on the two new models can be moved up or down, and set close to the seat or further back according to the posture required by the sitter.

Model D18 has tubular steel

arms topped by broad armrests, while model D19 is similar, but with a five-star underframe and with sprung apertures. The waterfall front to the Demos means pressure is reduced behind the knees - an important feature for those whose work entails extended periods of time at a desk, says Blue Line.

Blue Line Office Seating (CW), 561 Kitchener Road, High Wycombe, Bucks HP11 2SP. Tel: (0494) 20132.

BFI guarantees new disc range for 17 years

A RANGE of 5.25 inch and 8 inch high performance flexible discs, sold with a 17 year warranty has been introduced by BFI Electronics. The discs boast about 45% more than standard types carrying a five-year warranty.

Called the Verbatim Optima Series, the range is designed for use with computer systems handling data of a highly important or even irreplaceable nature. Typically these could include financial records, research data, security sensitive material and other information which needs to be available for both day-to-day access and long-term storage.

The 17-year warranty offered by Verbatim will ensure that each minidisc or diskette is guaranteed to perform an average of 70 million revolutions without the signal deteriorating by more than 25% of its original amplitude.

This performance exceeds the current industry standards by at least 20 times. Each disc is fully inspected and certified 100% error free at and between each track location over the entire recording surface.

The high performance of the Optima Series is achieved by incorporating several innovative developments into each disc construction. A special magnetic coating improves the cohesive binding characteristics of the entire media surface, thus enhancing data transfer and extending disc life, according to the supplier.

About 30% more surface material than normal is also applied to give greater protection from head to head.

The polyester base of the disc is fabricated from specially selected stress-free material, ensuring the surface and track distortion is minimal under varying environmental conditions. This superior distortion is complemented by a reinforced hub area with improved thermal stability and abrasion protection.

To ensure the lowest wear and longest disc life possible, an exclusive burnishing technique is employed to produce a surface up to 20% smoother than other high quality diskettes.

Optima discs are supplied in specially designed plastic boxes at no extra charge. These interlocking form systematic libraries and filing blocks. The standard of data file protection is therefore very high and handling requirements are minimised, says BFI.

BFI, Verbatim's principal UK distributor, expects the Optima Series to prove extremely popular with professional, academic and commercial users.

BFI Electronics (CW), 50 Welton Road, West Molesey, Surrey KT8 0QT. Tel: 01-894

ANY DATA YOU GIVE WILL BE PROCESSED AND USED IN EVIDENCE

Both authors are university lecturers. Piper is professor of mathematics at Westfield College, University of London, and Beker is currently chief mathematician at Rascal-Comsec, leading the cryptographic design of all the company's security equipment. Obviously their combined experience of presenting a complex subject in an acceptable way has greatly contributed to readability and impeccable presentation.

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BOOKS

Alternative to software packages

Basic Computer Programs for Business (Vol. 2), Charles D. Stenberg. Heydon/John Wiley & Son. £11.50.

If you own a small business, have acquired a disc-based microcomputer system with a printer, and are now looking for a source of cheap software, then this book could provide an alternative to the regular software packages that are available on the market.

It contains 70 programs, ranging from customer order processing to personnel record keeping. Each program is well documented with a description of its operation, a listing in Basic, a symbol table, flowchart, and so on.

The programs are of a high standard, with individual processes such as reading records and sorting grouped into separate subroutines. This modular format will enable

the reader to modify individual procedures without having to worry about messing up the whole program.

All programs in the book were developed on an Altair 8800. Unfortunately, there is no proper data validation in these programs, and because the input statement is used throughout, incorrect data entry could produce a system error message, which could be confusing to the inexperienced user.

The programs are of a general nature, so the reader should not buy this book on the assumption that once entered into the computer, everything will be fine. Different businesses have different needs, so some modification to the programs will be inevitable.

Peter Hennessey

Lecturers make ciphers acceptable

Cipher Systems - the Protection of Communications, Henry Beker & Fred Piper Northwood Books. £14.95.

SELDOM is the reader encouraged to skip difficult or boring sections of a book in order to reach the end, but here the co-authors actually suggest it in their introduction.

They emphasise that the aims of the book are wide: to introduce the subject to students intending to do research into cryptography; those intending to build cryptographic equipment; or those who merely wish to evaluate security products that are available, and that on this basis the background knowledge of readers will be variable, as will their mathematical ability.

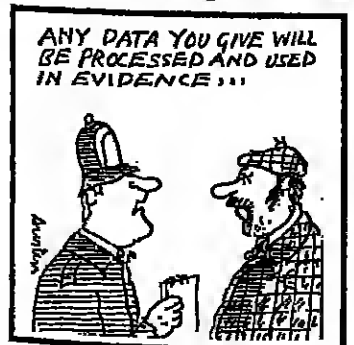
A book for such an audience is hard to write, but Beker and Piper have achieved a happy balance which avoids talking down to the

mathematician or administering an overdose of formulae to the lay reader.

Each chapter starts by describing either a concept or an encryption device in a self-contained section, so the reader is free to leave the exercises and practical examples and return later, without having missed a vital point.

The authors have made an ambitious attempt to cover both hardware and software encipherment methods including those for voice recognition systems which involve scrambling analogue to digital conversions. By illustrating ways in which a cryptanalyst might intercept and decode a speech message, such as by producing a frame by frame analysis of the amplitude using a sonograph, they suggest more sophisticated methods of securing the data.

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ANY DATA YOU GIVE WILL BE PROCESSED AND USED IN EVIDENCE

Japanese challenge

The Japanese Electronics Challenge. Edited by Mick McLean. Frances Pinter (Publishers). £15.50.

JAPAN and Europe's view of each other in the microelectronics and computing market emerges from this book - and the result is a pessimistic outlook, especially on the Europeans' side.

It is a compilation of the views of managing directors and other top people at big companies such as Fujitsu, NEC and Toshiba, Philips, Thomson-CSF and AEG-Telefunken; views presented at two seminars on the problems and opportunities arising from the Japanese challenge.

Papers by European and Japanese business leaders alternate throughout. This emphasises the contrast between the two sides' views. The Japanese point out that microelectronics is an ideal indus-

try for them to specialise in as their country has so few natural resources. They show how Japanese companies and their staff are quick to take advantage of electronics in their businesses. At the same time the Japanese say they are not strong on innovative thought, so they call for collaboration with Europe.

These views are put in the first part of the book; covering industrial change. The second half is less controversial and strong on statistics on everything from microcomputer sales to visitors to computer exhibitions.

John Kavanagh



ACME TIMESHARING BUREAU

"And remember, user time is money. So don't make your programs too efficient."

Good to keep as refresher course

Pascal Programming Problems and Applications, David T. Barnard and Robert G. Crawford. Reston Publishing (a Prentice-Hall company) £8.75.

BARNARD and Crawford, both of Queens University Ontario, have written a book of practical applications intended to supplement a programming text book as part of a university course. Examples have been collected for this book over the years, culled from classroom experiences.

Apart from the first chapter on algorithms and the rules for their expression, it consists of a series of problems of increasing complexity. Tuition is subtle: in working through the problems new aspects of programming are unfolded, so that the student is hardly aware of

being taught.

Part I teaches programming language constructs; part II describes techniques for solving a wide range of problems; and part III is dedicated to practical applications in DP and numerical methods.

All the problem solutions are programmed in Pascal, but the authors point out that most of the situations covered occur in any language and are equally applicable to them. They also state that all the programs in the book have been tested.

Each step in solving a problem is explained clearly and concisely, which makes this a good book to keep as a refresher course as well as for initial learning.

Maggie McLening

Of more use to teachers than practitioners

Information Systems Design, Cyril H. P. Brooks, Philip Grouse, D. Ross Jeffery, and Michael J. Lawrence. Prentice-Hall of Australia.

Interested in the field to take a closer look. I believe the book might be of interest to teachers who are looking for a suitable textbook in the systems design area. It would not, however be of

high interest to practitioners who are already well versed in the field, and are looking for new ideas. As a textbook it is well written. The references are up to date and contain all the "structured" gang.

I would recommend to the authors that they update with Fagan's inspection method instead of the older "walkthrough".

Tom Gilb

Ferranti displays. Clearly great performers.



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On the level with Adjustaflor

A FLOORING system, designed to meet the need in computer rooms and many offices for raised floors with concealed services beneath, is available from Adjustaflor, a new division of the Sidney Glover group of oil and property companies.

Developed to accept a variety of loadings, with access panels sized wherever necessary, the Adjustaflor system features unique "feet" which can be simply adjusted from above, allowing perfect levelling to

be achieved over extremely uneven surfaces. The feet give the added benefit of a low finished floor height, while providing a void of up to 90mm, thus eliminating problems previously encountered in raised floor designs.

Adjustaflor is offered in a choice of materials and thicknesses to suit individual requirements and is available with or without insulation which can save at least 15% heat lost through the floor. In addition, the system comes in

modular form, in 12 panel sizes, and can be rapidly installed by semi-skilled workers on to any hard surface, reducing labour costs and eliminating building material wastage.

This tailor-made flooring package can be supplied to suit a variety of building and structural regulations, says the supplier.

Adjustaflor (CW), Bunny Hall, Moor Road, Bramhope, Leeds, LS16 9BT. Tel: (0532) 843344.

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A PROCESS control system which, it is claimed, can be built and implemented in 30-60% of generally accepted timescales has been introduced by the CRL Systems Division of UK electronic instrumentation manufacturer Control and Readout.

Called CRL 2000, the system is designed for the process engineer - not programmer - to give him a comprehensive range of facilities in a form which he can readily understand and rapidly apply to his process problem areas.

Each CRL 2000 system comprises standard sub-assemblies designed and manufactured by CRL

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Customising the system to the application is the function of the software. CRL is totally programmable on or off site by either CRL or the user's engineers, with the aid of a detachable keyboard that obviates the need for a separate, costly, programming unit.

CRL Systems Division (CW), Control and Readout, Woods Way, Goring-by-Sea, Worthing, Sussex. Tel: (0903) 594541.



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for special multi-function printing applications at up to 160 cps, says Mannesmann Tally.

Mannesmann Tally (CW), Millers Lane, Wokingham, RG21 2QT.

Saving on keystrokes

AN AUTOMATIC log-on routine which can save terminal users over 50 keystrokes has been introduced by Mellordata for its Easel range of Digital Equipment VT100-compatible terminals.

Userlink generates all the initial communications messages from a handful of keystrokes. Mellordata says it is not uncommon for users to have to type 54 characters to log-on to some database systems.

With Userlink the keystrokes are sent at the full transmission speed. This can halve the connect time and substantially reduce user costs, says the company.

Mellordata (CW), Woodgate Road, East Bergholt, Colchester, Essex. Tel: (0206) 298181.

Ferranti Computer Systems Limited, Argus Product Sales, Wythenshawe, Manchester M22 5LA. Telephone: 061-499 3355. Telex: 668084.

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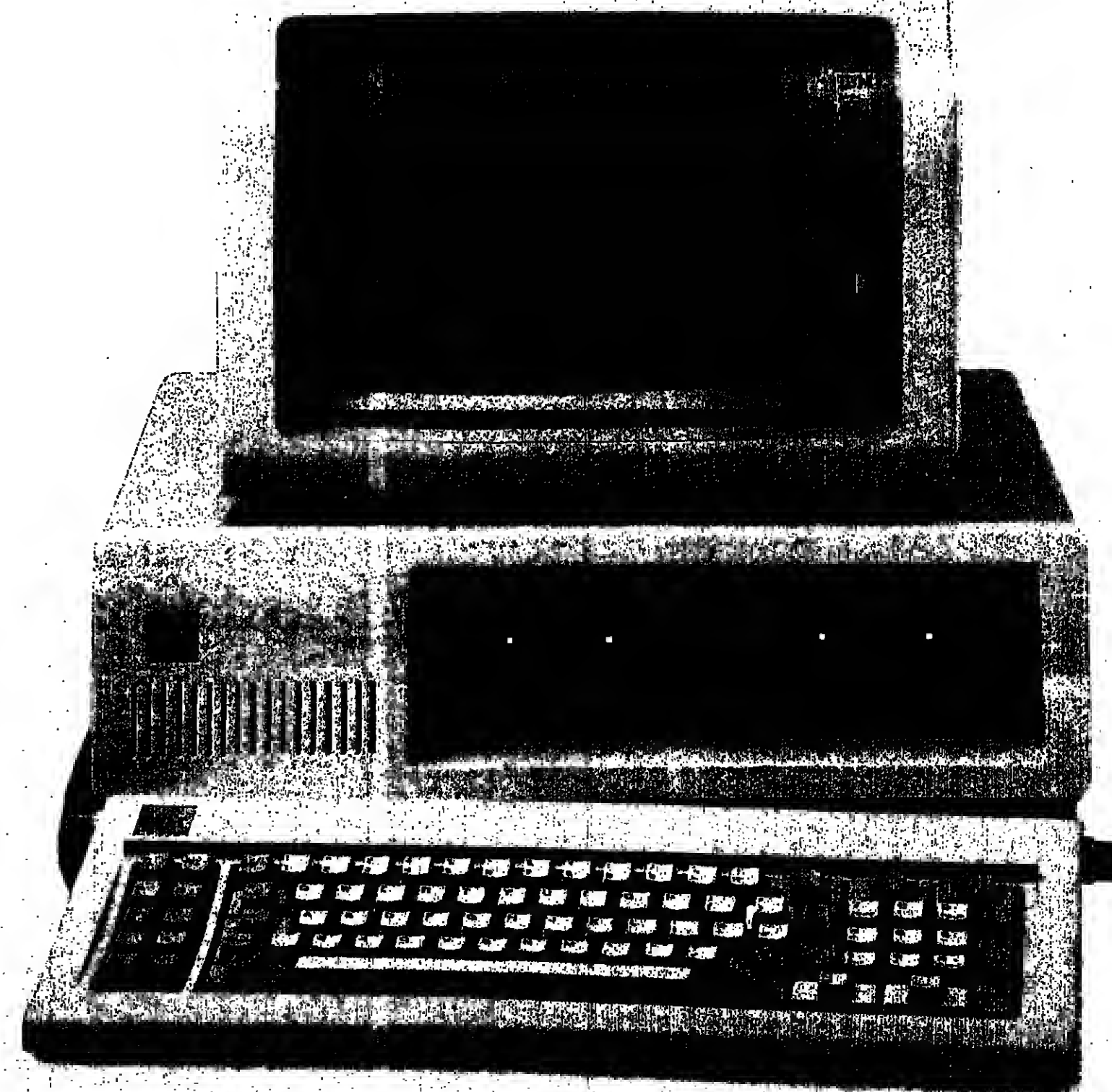
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The computer installation run as a business

The Economics of Information Processing. Edited by Robert Goldberg and Harold Lorin. John Wiley. Vol. 1. 238 pp. £10.35. Vol. 2. 185 pp. £18.50.

MOST FIRMS install a computer to be more cost-effective. Yet computing is a business in itself and if not run efficiently the value of the investment is diminished. According to its editors this book will help managers make sound cost-effective decisions on system development and management.

The claim is not unreasonable, and these two volumes should certainly go a long way to achieving their object. Goldberg and Lorin, both on the staff of IBM's Systems Research Unit, have assembled 34 interesting fact-filled papers. Seventeen of these are from fellow IBMers, 10 from other business data processing professionals, and seven from academics.

Volume One is subtitled "Management Perspectives" and begins with a consideration of the need for a coherent strategy for information processing, something sadly lacking in many organisations. Brandt Allee's paper on Computer Strategy was particularly helpful.

The first section of this volume also includes chapters on the pros and cons of centralisation and distributed processing, the management of a systems strategy, and the economic impact of networking. The remaining sections of Volume One are concerned with information requirement analysis, modelling, and the economic factors involved in the justification of information systems.

As Gerald Matlin observes in his chapter on the value of investment in information systems, many companies find it difficult to put a



"It may be great for system development but no-one else can get a look-in".

value on the results of their investment. Matlin's discussion of the evaluation of intangible benefits should prove useful to all managers who wish to demonstrate the value of their applications to the organisation.

"Operations, Programming and Software Models" are covered in Volume Two, which includes material on relations with users and communication with them through an appropriate chargeout

method. There is also a chapter on alternative structures for information processing management, plus further discussion of centralisation and decentralisation.

Many will find the meat to be the chapters on applications development. These cover the use of standardised systems, application generators and programmer productivity measurement.

Alan Stewart

Landmark in micro language

A Dictionary of Microcomputing and Microcomputing. Philip Burton. John Wiley & Sons. £15.00.

CONCISE but colourful definitions, comprehensiveness, clear diagrams and plenty of space to make the text easy on the eye are the aims of this dictionary. It succeeds to a large extent but at the expense of economy and portability.

The one centimetre gap between each entry is wasteful. Half that space would have been as effective and would have saved at least 60 of the 346 pages. In addition the re-printing of definitions and diagrams contained in the body of the dictionary in 60 pages of separate subject-headed Appendices appears unnecessary. Dictionaries are consulted for individual words and not used as vocabularies.

The definitions are clear on the whole, although some are well below par; some omissions are inevitable and notable ones include OBM and CAM (CAD is included), and a misprint in a key-word "sequential logic" for "sequential logic", however obvious, is unfortunate. The diagrams succeed very well, being simple and informative, although an illustration of "nesting" would have been useful.

The chatty style is endearing, but goes overboard at times. In general though, the book will be found to be both useful and usable and provides a landmark in the rapidly evolving terminology of the mini and micro world.

John Riley

More to life than the blue giant, Mr Weil

Information Systems in the 1980s. Ulric Weil. Prentice-Hall. £23.95.

IT IS HARD to see for what book is written. Its author, Ulric Weil, is a well-known New York stock market analyst, perhaps known for his watching of the market for it is as an investor to the US computer industry people interested in him there.

But if this was Weil's last he has failed. Its coverage of the industry, except, unfortunately, the chapter on IBM, is superficial. For example, its section on "supermini" concentrates heavily on Computer and Tandem, but scant reference to Digital Equipment — the second largest computer manufacturer in the world — IBM, or to Data General, is lacking.

Wang, one of the fastest growing computer companies in the world, is only one mention, and packaged software is mentioned in passing but not MSA, the world's largest supplier of software packages.

Only the coverage of IBM is any way worthwhile, but even that will merely serve as a basis for the topic. And then there is the price, £24, for a book which ignores the European information technology industry. This is too expensive for the level of coverage the book offers.

Kevin Power

Fascinating puzzlers — but no pictures!

The C Puzzle Book. Alan R. Feuer. Prentice Hall. £10.35.

WHO EVER heard of a puzzle book that didn't have pictures or jokes? This one has neither and at first glance looks most unexciting, for in spite of what might at first have been thought, it is not at all about using "C" to solve puzzles. Rather, it consists entirely of the kind of infuriating brain-

twisters that used to appear in the worst examination papers. After working painfully through a few pages, however, one suddenly gets a feeling for what it is all about. It's a set of Five Finger Exercises for the advanced "C" programmer — marvellous stuff for toning up the grammatical sinews, but of no artistic merit (or pretensions) whatever. This revelation

was quite refreshing, for the world is full of books on programming style (though few, perhaps, on "C" itself), but grammar exercises seem to be out of fashion. Perhaps this work will start a trend back to old-fashioned virtues.

In keeping with the book's intentions, it is precisely organised, terse in style, and there are no noticeable omissions of content. It

is not a book for the novice programmer, nor do I think it would be very entertaining or informative to someone not already well acquainted with the language. On the other hand, it will quite likely provide many happy hours of harmless amusement to the committed "C" hacker.

Bill Tuck

A lively introduction to Pascal for students

Pascal for Students. R. Kemp. Published by Edward Arnold. £5.95.

TAKING no chances on the reader's background knowledge, Kemp wades in with a potted introduction to computers, covering applications, hardware, software, compilers, algorithms, flowcharts and brief descriptions of Cobol, Fortran and APL in just 11 pages.

This is surprisingly good, considering the enormity of the task, but could have been reduced still further by omitting the explanation of punched cards, which are rapidly becoming obsolete in the industry.

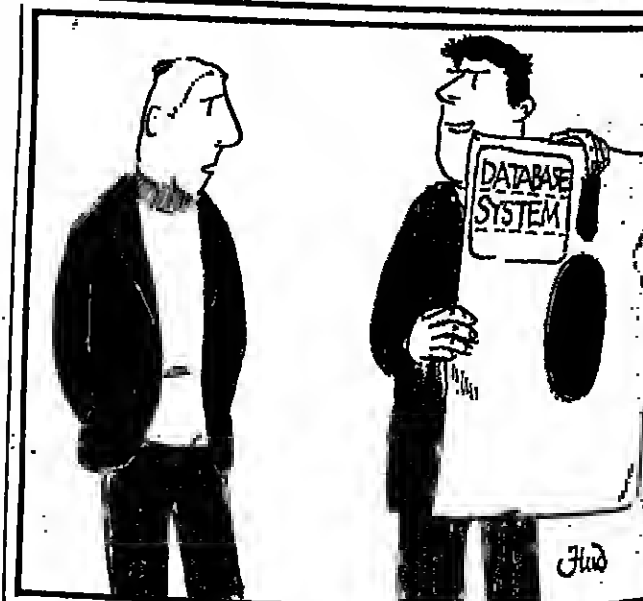
Once the reader has recovered his, or her, breath after digesting the chapter on fundamentals, it is straight into a Pascal program with no preliminaries on the meaning of the terms shown, or syntax.

The author goes on to explain what they all mean within the context of the sample program, however, and lays the foundation for a commercial programmer by pointing out what the result will be in application terms, a useful and pertinent exercise that is often omitted in text books.

This book would be excellent for use as a textbook by a group of students, because the writing is lively, advice is realistic and it is full of examples that thoroughly illustrate use of Pascal. Because Kemp is senior lecturer at the School of Mathematics, Computing and Statistics at Leicester Polytechnic, perhaps the strength of the book is unsurprising.

It is, however, much less suited to someone attempting to teach themselves the language with no previous experience of programming.

Maggie McLennan



"When you said it was floppy-based, that wasn't what I was expecting".

A sound approach to database design

Database Design Methodology. M. Vetter and R. N. Maddison. Prentice-Hall International. 306pp.

AN INTERESTING collection of advanced state-of-the-art material on database design methodology is presented here. The subject matter, examples, exercises and references have been gleaned from a variety of different sources: research journals, various teaching courses and the authors' own extensive experience. The aim of the book is to introduce a comprehensive database design procedure. This begins at the basic data modelling stage and proceeds through a number of distinct refinement steps.

Throughout the book the authors have used the three level Anal/3/Sparc database terminology as their basis for description and discussion. This is reflected in the book's overall organisation. There are three individual sections dealing with the conceptual realm

(chapter 4), the internal realm (chapter 5) and the external realm (chapter 6). The final chapter of the book discusses and advocates the generalised design procedure that is introduced and advocated in the previous sections.

Each chapter of the book has an accompanying set of exercises in which answers are given. There is also a bibliography and reference list to support each of the chapters. Line diagrams and tables are used in an effective way to illustrate the various concepts that are introduced.

The book would make ideal reading for a DP professional looking for a sound approach to database design. It would also make a useful support text for a taught course. However, as a self-instruction text, many students might find some of the material a little difficult to assimilate on first reading.

Philip Barker

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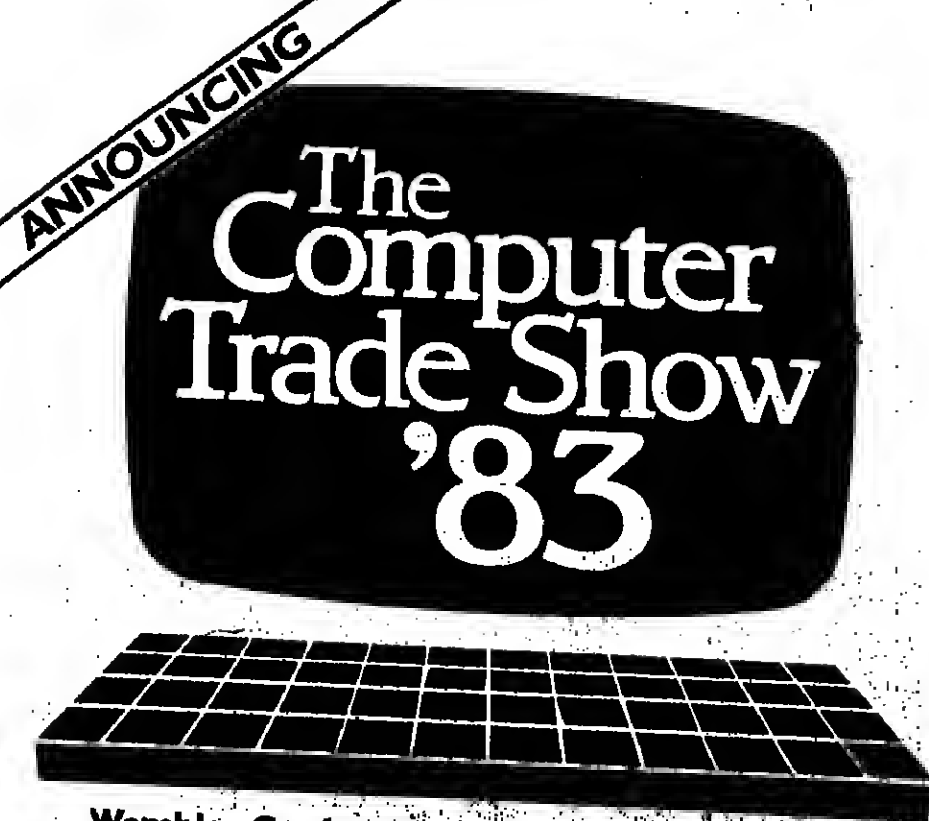
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There are also positions available to people who have only one or two years' experience in either the broking market-place or computer market-place, who require further training.

Applicants should write, in the strictest confidence, with full personal and career details, to: S. Knowles-Baker, Michael Linford Associates Ltd., 169a Gloucester Road, South Kensington, London, SW7 4TH. Telephone: 01-370 2012.

MEGALEASING

Michael Linford Associates Ltd.

Executive Search Consultants
169a Gloucester Road, London SW7, Telephone: 01-370 2012, 2013.

Telecommunications Manager

FOR

AKROYD & SMITHERS

Akroyd & Smithers P.L.C., a major stockjobber on the Stock Exchange, is seeking a Telecommunications Manager to plan, install and manage telecommunications systems (primarily telephone) within the company.

Qualifications should include:

- ★ Competence in telephone systems particularly those using digital switching technology
- ★ Working knowledge of data communications protocols, including: I.B.M., I.C.L. and X.25
- ★ Knowledge of the financial industry and its related services (Reuters, Topic, etc.)

The position will be a challenging one as telecommunications, especially of an international nature, are becoming increasingly important to the company.

Please write with full personal and career details to:

Rodney Yates
AKROYD & SMITHERS P.L.C.
Austin Friars House
26 Austin Friars
London, EC2N 2EE

your appointments register

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Systems Programming experience Middlesex

DEC/HP/WANG/DG to £12K
Real-time Cobol Berks - Surrey

IBM 4341/CDBOL to £10K
Financial/Insurance W. Sussex

IBM to £16K
System exp. Essex

ICL/VMEB or K to £11K
Finance Surrey

IBM/UNIVAC/CDBOL to £12K
On-line/Database Surrey

NCR/NEAT to £11K
Kent

Systems Analysts

IBM/ICL to £12K
Stock Control/Commodity Control London

CAD/CAM to £16K
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IBM/BURROUGHS to £15K
Commercial Accountancy London/Surrey/Manchester

IBM to £15K
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ICL to £12K
Panalons Surrey

ICL 1900/2903/DME to £10K
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Frank Thomas
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102, New St.
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Simon Johnson
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manufacturing systems environment
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This opportunity has arisen due to the promotion of their current DPM to a bigger job within the group.

The installation comprises an ICL ME29/45 running under TME using COBOL and OMAC 19 with a total of 540 MBs of storage. Systems development is at an exceptionally advanced level with applications covering all aspects of the production process, accounting and management reporting using interactive, on line and batch systems with plans for moving towards database.

Reporting to the Financial Director, you will not only be fully responsible for the management of the installation but will also be heavily involved in systems planning and top-level design.

Probably from an ICL COBOL background, you must have several years' experience in systems analysis and design within a manufacturing environment and be strong on a wide range of production systems, with an understanding of database techniques. A knowledge of OMAC 19 and/or 29 would be useful.

Terms of employment are excellent and include 5 weeks' holiday, private health assurance and generous assistance relocation where appropriate.

To apply, please telephone or write to David Lloyd, quoting reference 6617.

Lloyd Chapman Associates
123, New Bond Street, London W1Y 0HR 01-488 7761 (2670)

PROJECT LEADERS

We have been notified by two clients in the City and East London, both wishing to appoint experienced project leaders with a proven track record for their newly-created systems development teams. Large company with a wide range of projects, including MORTGAGE facilities, LOANS, etc.

PROJECT LEADER

Major international company requires someone with five to six years' DP experience, ideally with an MBA, to lead a small development team in an RPA environment. The successful applicant must have managerial/leadership qualities rather than specific hardware knowledge.

RPA 2/3 SPECIALISTS to D.P.M. level

A number of our clients situated in London/Hampshire and South-East England need Project Managers/Analysts with two years' RPA2 and/or RPA3 experience, preferably on System/34 and/or System/36. Successful applicants will include International Banking. Benefits include subsidised MORTGAGE and a profit share.

DEPUTY D.P. MANAGER

This expanding company is seeking someone to act as deputy to the D.P. Manager in a busy RPA environment. The successful applicant will have sound commercial design experience, plus ability of communicating at all levels. A knowledge of RPA3 would be an advantage, but formal training will be given.

ICL PROGRAMMERS & ANALYSTS

A number of VME/8 clients based in London, Surrey, Middlesex and Sussex need development staff with VME/8 COBOL experience. Knowledge of IGME is an advantage although training is given.

FORTAN SPECIALISTS

Programmers are required to join existing development teams to work on a wide variety of applications including scientific, research, engineering and commercial projects. Excellent benefits include annual bonus, pension and share.

DOS SENIOR OPERATOR

This international company requires someone with a minimum of two years' sound technical experience in DOS/VSE, CICS and VTAM. Benefits include MORTGAGE facilities, etc.

MVS OPERATORS

Two leading organisations require Operators to shift level with MVS/JES2 experience to complement their expanding team structure. Excellent prospects and benefits apply.

ICL OPERATOR

A well-known retailing group need someone with a minimum of two years' VME/8 experience. A possible career shift level status is envisaged later. Full relocation costs apply where applicable.

GSD OPERATORS

This large company is seeking two Operators with 12 months' IBM System/34 and/or System/38 experience and initial.

BURROUGHS OPERATOR

A major international company requires an Operator with two years' BURROUGHS 1800/1900 experience and MCP. This position offers excellent prospects with a structured career path.

IBM OPERATORS

A leading financial organisation are seeking two Operators with sound DOS/VSE, VM, expertise. MORTGAGE facilities, loans, are two of the many excellent benefits.

ICL OPERATORS

At least two years' experience of GME and/or GEORGE 2 is required for this leading consumer group. The successful applicant will operate a TWO-SHIFT system and there is a well-structured career path.

IBM OPERATORS

Our client is relocating to NEWBURY later this year and are wishing to recruit experienced DOS/VSE Operators. Initially all travel costs to their present site in Surrey will be paid. DAYS ONLY.

The above vacancies are only a token selection taken from our current files, and we are always pleased to hear from computer professionals wishing to further their career objectives.

BUICK COMPUTER SERVICES

RECRUITMENT DIVISION
72 Rochester Row
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Tel: 01-834 0061 (24 hours)

BRIGHTON POLYTECHNIC Department of Computing and Cybernetics PRINCIPAL LECTURER AND TWO SENIOR LECTURER/LECTURER II POSTS

Applicants must hold an honours degree and have experience directly relevant to the future lecturing requirements of honours degree courses and postgraduate courses in Computing and Micro-electronics. The successful candidate will be expected to work in one of the following areas:

Business computing, systems architecture, networks, databases/expert systems

Salary:
Principal Lecturer: £11,931-£15,018
Senior Lecturer: £10,173-£12,818
Lecturer II: £8,855-£11,022

Further details and application forms may be obtained from the Deputy Head of Personnel, Brighton Polytechnic, Moules-cum, Brighton BN2 4AT. Telephone: Brighton 693855 Ext. 2837. Closing date, 30 March 1983. (2648)

IMPERIAL COLLEGE OF SCIENCE AND TECHNOLOGY Atmospheric Physics Group

Applications are invited for the post of

SYSTEMS PROGRAMMER

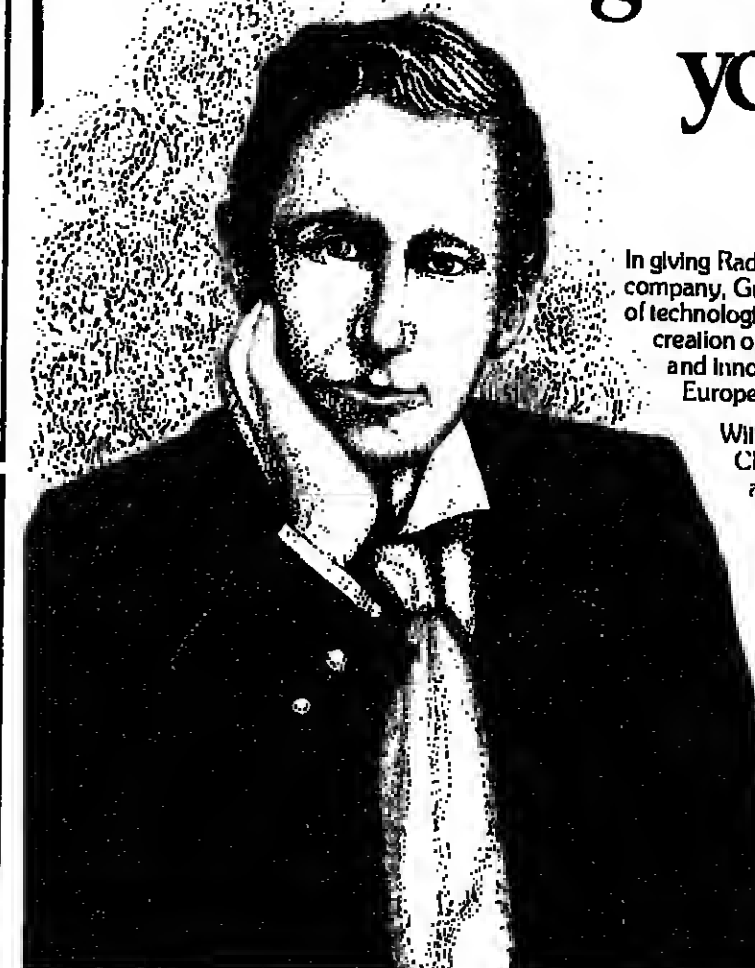
to work on Image Processing applications of Voyager observations of Jupiter and Saturn and real-time processing of meteorological satellite data.

The applicant should possess an honours degree or equivalent qualification. Experience with DEC VAX II or PDP 11 operating systems and an interest in solar system problems necessary.

Salary will be in the IB range £8,807-£9,243 inclusive. Applications with names and addresses of two referees should be sent to Dr. Gary Hunt, Atmospheric Physics Group, Imperial College, London SW7 2BZ. (2643)

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Write with details of your experience, qualifications and the role which interests you to Tim Jones, Personnel Department, Marconi Radar Systems Limited, White Road, Chelmsford, Essex. Telephone: Chelmsford (0245) 67111, ext. 2610.

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Analyst	

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We are also interested in hearing from people with either IMS/ADF, CICS/COBOL, DL/1, PL/1, MARK IV, or Assembler.

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Further details and application form returnable by 4 March from: Head of Computing and Management Services, County Hall, Maidstone, phone (0622) 671411 (ext. 4128).

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(2632)

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£8,866-£11,864 (Bar)-£12,818

Candidates should have experience in industrial or commercial practice with particular reference to data processing, systems analysis and design, data base or real time systems. Preference will be given to candidates with some teaching experience.

Further details and form of application from the Staff Officer, Trent Polytechnic, Burton Street, Nottingham NG1 4BU. Forms to be returned as soon as possible. (2648)

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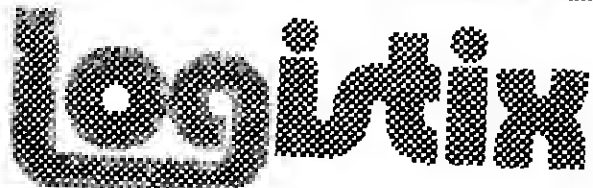
Applicants, aged mid-20s and educated to at least 'A' level standard, require a minimum of 2/3 years' COBOL experience and

should have at least 6 months in an analysis role. Experience of WANG or IBM kit is preferable and on-line experience essential, as is an ability to relate to both computer professionals and non-technical staff within the company.

Benefits include pension, BUPA, free life assurance and Stock Purchase scheme. WANG is a fast-growing company and opportunities for career progression are exceptionally good. Interested applicants should send full cv to: Mary Gilgallon, WANG (UK) Limited, WANG House, 661 London Road, Isleworth, Middx. TW7 4EL. Or telephone 01-560 4151 for an application form.

WANG

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Telephone 01-373 3063

Systems Software Engrs

W. Germany & Benelux: Salaries to £20K

The continuing success of a small, expanding German Systems and Software House has created a number of Systems Programming vacancies in both W. Germany and Belgium. Whilst the variety of work offered is immense, specific skills should lie in one or more of the following areas: Compiler Development (especially ANSI Cobol), PLM communications systems design incorporating X.25 protocol techniques. Natural language ability is not a prime requirement but an understanding of German in either written or spoken form will attract a salary premium. Full relocation expenses will be met.

Ref: L/S/A

Graduate Progs

London & H. Counties: Salaries to £7.5K

A number of exciting opportunities have arisen in London and the Home Counties for Programmers who have recently graduated. You should hold a first or second class honours degree in Mathematics, Computer Science or Electronic Engineering. Of particular interest will be applicants who have completed a sandwich course and can offer twelve months' industrial training experience. It is essential for all positions that you offer fluency in PASCAL, C, ADA or Assembler. Ideally your project work should have included compiler writing, artificial intelligence, UNIX or firmware development.

Ref: L/S/D

Real-time Software

South Coast: Salaries £10K+

A number of our clients, including Systems and Software Houses and Manufacturers, have vacancies for Programmers and Analysts/Programmers with at least 18 months' industrial experience. All applicants should have been involved in the development of a real-time system based on either PDP-11 running under RSX-11 or RT-11 or Data General mini-computers. Programming skills should include fluency in at least one high-level, block-structured language and an Assembler. Many of these positions are for UNIX-based systems vacancies and should therefore appeal to candidates who wish to enhance their skills.

Ref: L/S/C

Compiler Development

London & H. Counties: Salaries to £14K

A major Systems and Software House has recently embarked on a large new project requiring the expertise of a number of Compiler Development Specialists. Suitable candidates will have participated in the development of either a Pascal or Ada compiler, preferably for 16-bit micros. Familiarity with all phases of compiler development is strongly desirable with particular emphasis placed on Code Generation and Optimisation. Whilst specific responsibilities will vary, depending on the ability and experience offered, all successful candidates will be involved from initial proposal stages through to the creation of a fully self-supporting compiler.

Ref: L/S/D

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Goldref Foundry - members of the fast-expanding NORTHERN FOODS GROUP, a company with annual sales exceeding £1,000 million - are leading suppliers of high quality ingredients for the bakery and catering trades. The company has invested considerably in computerisation and wishes to appoint a

BASIC-PLUS PROGRAMMER

who will be involved in both development and maintenance activity. The successful candidate will join a small but highly motivated team within which there will be considerable scope for initiative and originality.

Experience of programming in basic plus - ideally over a minimum of 3 years - is essential. While candidates should also be familiar with file-handling techniques preferably on Sylline 5000 hardware.

Terms and conditions of employment within Goldref Foundry are competitive and would be expected from a group of our size and an attractive salary will be offered with this post.

Should you wish to be considered for the appointment, please send full details of your education, work experience and current salary to:

John Parr, Personnel Manager
Ch. Goldref Foundry & Son Ltd
Brookfield Drive, Althwaite
Liverpool L9 7AW

(144)

Process Control

Central London: Salaries to £14K

A leading international Systems Supplier is currently seeking to recruit a number of additional Programmers and Analysts/Programmers for its industrial division. Suitable applicants will be graduates with a minimum of two years' programming experience gained within a real-time mini-computer or micro-processor based environment. Whilst there is no particular hardware requirement, knowledge of DEC PDP-11, HP1000, HP3000 or Intel 8085/86 would be a distinct advantage. You will join a multi-disciplinary team in which members have specialist knowledge of, for example, communications, control systems, automation or CAD/ CAM. Projects will be within the oil, gas, electricity and manufacturing industries.

Ref: L/S/E

UNIX Programmers

London: Salaries to £12K

An internationally renowned Product Supplier is currently seeking to recruit a number of Systems and Applications Programmers to work on its recently introduced UNIX-based product range. Suitable applicants should hold a numerate degree and have a minimum of two years' development experience in a mini-computer or micro-processor based environment. It is essential for all positions that you are fully familiar with the internals of UNIX and that, additionally, you offer fluency in C and an Assembler language. Working in a dynamic and flexible environment you will be involved in the development of UNIX based systems for the commercial market. The majority of development work will take place in Central London but a degree of mobility is essential for client visits.

Ref: L/S/F

Comms Systems Software

Herts/Bees: Salaries to £14K

The Communications and Networking Division of a well-known Turnkey Systems Supplier has a number of career positions for Software Engineers and Designers. Candidates should hold at least a B.Sc. or H.N.C. qualification and have subsequent commercial/industrial experience amounting to 18 months'. Certain positions will be exclusively in-house based whilst others will entail a systems support role. Of interest to the Company will be those who have software or systems design experience with a supplier of wide and local area networks - an in-depth knowledge of X.25, SDLC/HDLC protocol techniques is obligatory. A salary premium will be paid to those who have participated in the enhancement or optimisation of a UNIX or UNIX look-alike operating system.

Ref: L/S/G

Firmware Programmers

Thames Valley: Salaries to £11K

A small but rapidly expanding company has a number of vacancies for Firmware Programmers/Designers to join its product development group. Acting as the external development department for a wide range of hardware and software involvement, the company is able to offer a wide range of hardware and software involvement. Suitable applicants will be graduates with a B.Sc. or M.Sc. in Electronic Engineering or Computer Science. It is essential that you offer fluency in Micro Assembler with 'C' being desirable. Mostly based in-house you will be involved in the development of intelligent terminals, data capture equipment, multi-micro communications processors or ATE software.

Ref: L/S/H

Navigation Systems

Thames Valley: Salaries to £13K

A supplier of electronic and precision instruments is seeking several Software and Systems Engineers for its U.K. Head-Quarters. Suitable applicants must be numerate graduates who are currently involved in the design and development of micro-processor based automation and control systems. Programming skills should include total fluency in at least one of: Pascal, Assembler (and in particular Macro-11) or 'C'. Candidates must have the ability to resolve complex software problems for end users where the software is not conducive to high technology products. Those who have significant systems design experience where guided weapons and missile control systems are under development are particularly encouraged to apply.

Ref: L/S/I

Military Systems

London Based: Salaries to £15K

A London based Systems and Software House specialising in the design and development of scientific systems is seeking additional personnel with specialist knowledge of military systems. Suitable applicants will be graduates with a first or second class honours degree in a numerate subject. You should offer a minimum of eighteen months experience gained in a mini-computer or micro-processor based scientific environment. There is no preference for programming languages as the company provides excellent in-house training, but fluency in PASCAL, FORTRAN, ALGOL or CORAL 66 would be a distinct advantage. Your applications knowledge, which will be of primary interest to our client, should include one or more of Simulation, Statistics, Operations Research, Automotive Control or Communications.

Ref: L/S/J

Micro Development Engrs

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Ref: L/S/K

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Ref: L/S/L

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Ref: L/S/M

(144)

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Well-paid jobs are to be found in the private sector, for those with a couple of years' experience, says Margaret Park

North's a good move for skilled software staff

THE North of England is no longer associated with prosperity and full employment. The state of the region is even reflected in the computer industry, in the form of a dramatic split between opportunities in the public sector and jobs in private companies.

The picture is not altogether gloomy, but it does reflect the effects of a recession. There are jobs to be had, but, as usual in lean times, experience is most in demand. There are fewer jobs for the newcomer and turnover is slow.

People living in the North, particularly the North-east are hanging on to the jobs they've got and are not taking the risks usually associated with a mostly young workforce in a growing industry.

In public sector installations opportunities are almost non-existent, which should mean that Northern private employers now have the pick of skilled software staff.

One of the biggest installations in the region is the Department of Health and Social Security's computer centre at Washington in Tyne and Wear.

Data processing manager is Alan McPherson, who has a staff of 120. "The plain fact is we've had virtually no staff movement at all over the past 12 months," he said.

McPherson thinks the main reason for his settled workforce is that they can't see many opportunities elsewhere.

"If they wanted to move on in the Civil Service," he said, "they'd either go to the DHSS central office 10 miles away, or would move

into general management which is the wrong move for our computer staff because they get an extra allowance for their DP specialisation."

Most government departments are cutting down on staff through natural wastage. Even this has slowed down in Tyne and Wear - the only leavers now are those of retirement age.

"We used to get a lot of wastage from DP grades," said McPherson, "but now there aren't the attractions outside."

Turnover from staff employed by the government is usually fairly rapid in the computer industry because of the salary competition offered by private industry. The usual story is of public bodiea - the National Health Service is a good example - frantically looking for qualified staff but not being able to match the incentives in private computing.

Two of the other biggest Northern employers, Compower and British Steel, have fallen on much-publicised hard times.

Compower, which employs 90 computer staff at Gateshead, is owned by the National Coal Board whose business has shrunk steadily over the past decade. Compower is also a bureau, but

that side of the business, too, has taken a downward turn.

Howard Middleton, data processing manager, said: "We recruit one or two members of staff a year and that's difficult to maintain. Our last new member was a programmer who joined us in the middle of last year."

Compower is obviously affected by events at the National Coal Board. And redundancies there make it difficult for Compower to carry on with recruitment.

"We're under instructions to cut back," said Middleton.

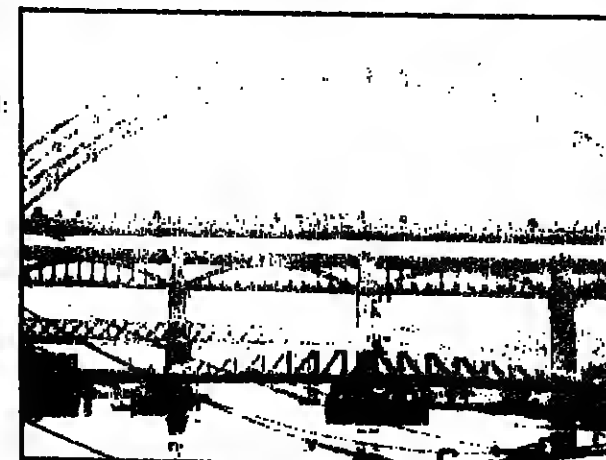
The problems on the bureau side of the business are more surprising. Middleton insists that the present bureau slump is not the start of something worse but is just a temporary effect of the recession.

There are nevertheless those in the industry who argue that bureaux, in their existing form at least, are a dying service.

Bureaux like Compower and especially those in the North, feel the recession as a double-edged sword.

"We do a lot of payroll work," said Middleton, "so if our customers lay off staff we have less work to do."

"We are picking up new business," he added, "but



Tyne bridge is traditionally a symbol of enterprise - but at present those in the North-east are hanging on to the available jobs.

business is equalled by losses."

The reasons, he says, are client companies going bust and others going in-house by buying their own computer facilities.

British Steel has also told a sorry tale lately. "We're not recruiting at all," said DPM Tom Kelley. British Steel's computer centre is in Scunthorpe and the company's staff is shrinking.

Staff are leaving at the rate of eight per cent in 12 months, according to Kelley.

But privately owned computer installations in the

North are doing rather better than their public neighbours. A few weeks ago a Manchester software house, Management Control Systems, made public its desperate need for no less than 20 analysts and systems designers.

Managing director Eric Haworth, said he couldn't get hold of experienced staff.

The pharmaceutical firm TJ Smith and Nephew has vacancies now for programmers and analysts. As with most DP employers at present, the company is

looking for trained staff, here with expertise in Honeywell equipment.

Smith and Nephew has just moved its computer operation from Welwyn Garden City to Hull and has combined two departments so the extra staff are needed as a result of internal changes.

Radius Computer Services, another Hull firm, is also after experienced software staff. Radius is mostly a systems house but does some bureau work as well.

The company's DP manager, Edward Sharp, says he has some trouble getting staff. But the problem has not been brought about by any shortage of applicants, rather a shortage of experience.

Perpetrating the curse of the TOPS student and the recent graduate, Radius like the others, says it must have experienced programmers and analysts with at least two years behind them.

Hit hardest as they are by recession, employers in the North are not in a position to land themselves with inexperienced staff who may be expensive to train.

That is not to say that salaries for Northern computer staff are suffering. Companies like Radius are willing to pay more than

£9,000 for two years' programming experience, but in the long term a good salary is probably cheaper than the costs in time and effort of training a newcomer - and with none of the risks concerning how that new member will turn out.

For companies like Radius in Hull, steady growth means a fairly constant demand for staff. Radius has increased its personnel from 20, two years ago, to 65 now.

But Sharp said: "Staff aren't easy to get here because they're not of the right quality. We get lots of applications from minimally qualified people."

How does a DP manager like Sharp decide when they did at work last week, he explained, "and ask for the details of each day's work."

Applicants are set an aptitude test as well - a formal test, partly on programming skills.

It seems that job opportunities in the North exist almost exclusively for experienced software staff and only in the private sector.

Computer staff with less than two years' experience and particularly those starting out with none at all, will have to get themselves qualified in that respect in other parts of the country.

But a good point about working in the North is that salaries are substantial. This coupled with a lower cost of living than other more prosperous parts of the country, makes the move North a good idea for those with experience.

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